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INFRASTRUCTURE SERVICES AND FINANCING IN CHINESE CITIES

Kam Wing Chan[†]

Abstract: As urbanization accelerates and cities expand their role in the Chinese economy, expensive urban infrastructural facilities and financing have become major policy issues. Drawing on fieldwork in five cities in 1994 as well as national statistics, this Article analyzes the provision of urban infrastructure services and financing. As marketization proceeds, an overhaul of the urban public finance system, along with a redefinition of the role of local government in China, is urgently required.

I. INTRODUCTION

As China moves to an era of rapid urbanization, provision for, and financing of, urban infrastructure services are critical areas in the nation's economic development. This Article begins by reviewing the changes in urban construction policies in China over the last two decades. It then assesses the situation of provision and financing based on national statistics and field studies conducted in 1994 in five cities (Qingdao, Taian, and Qufu located in Shandong Province, and Guiyang, and Anshun located in Guizhou Province). The Chinese case is also examined in the international context. The Article concludes by identifying a number of major issues for further consideration.

II. URBAN DEVELOPMENT AND INFRASTRUCTURE PROVISION

A. *Urban Infrastructure in a Planned Economy*

Urban infrastructure can generally be defined to include public utilities,¹ municipal works,² parks, and transit systems. In China, most of these urban infrastructure services are under the jurisdiction of urban

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This paper draws partly from information collected from the author's fieldwork in Shandong and Guizhou in 1994 commissioned by the Asian Development Bank. The author wishes to thank the Chinese Ministry of Finance and other ADB mission members for their assistance.

¹ This category includes power, piped water supply, sewerage, and waste disposal.

² This consists mainly of roads and drains.

construction (*chengshi jianshe*) authorities. These authorities oversee the planning, construction, and management of cities' municipal housing,³ *shizheng gongcheng*,⁴ *gongyong shiye*,⁵ parks, and solid waste treatment. The Ministry of Electric Power administers electricity, which is considered to be a directly productive activity. Urban infrastructure services refer primarily to those services classified under "urban construction" in China.

In the era between 1949 and 1978, China's approach to urban infrastructure was typical of one used in many centrally planned economies.⁶ The government devoted little attention and few resources to urban construction. In the first place, the government adopted a straightforward industrialization strategy to achieve high industrial growth. Consumption and infrastructure investment, both considered "nonproductive," were not priorities. The Chinese government gave urban construction very limited funding. The major source of funding for urban construction, the Urban Maintenance and Construction Funds ("UMCF"), depended heavily on central budgetary allocations and a number of small ad hoc and changing levies and fees determined by the central government (such as the Public Utility Surcharge ("PUS") established in 1963). The latter was charged mainly to enterprises and users.⁷

According to Hua, a senior official of the Ministry of Construction, from about the 1950s through the 1970s, investment in urban construction totaled RMBY 12 billion, roughly 1.43% of the nation's total fixed investment and about 0.23% of GDP.⁸ Hua points out that these figures are very low compared to those of many other countries, whose urban construction's percentage share of total fixed investment ranges from ten to fifteen percent, and whose percentage share in GDP is three percent. The UMCF in China averaged about RMBY 1.07 billion per year between 1973 and 1977,⁹ or roughly RMBY 10 per resident. China's central government determined funding for urban construction by drawing up investment plans

³ Municipal housing does not include public housing owned and administered by individual enterprises.

⁴ This refers to "municipal works," which include roads, sewerage, and waste water treatment.

⁵ This refers to "public utilities," which include tap water supply, buses, and piped gas supply.

⁶ For a discussion on the former Soviet Union, see JAMES H. BATER, *THE SOVIET CITY* (1980).

⁷ CHONGMIN ZHANG, *CHENGSHI JIANSHE JINGJIXUE* [THE ECONOMICS OF URBAN CONSTRUCTION] (1990). There were separate budgets for "public" housing, run and managed by state-owned enterprises, and for urban infrastructure, such as roads serving certain enterprises.

⁸ Kuiyuan Hua, *Urban Infrastructural Construction, Development Problems and Prospects in China*, in *ZHONGGUO CHENGSHI YU QUUYUE FAZHAN: ZHANWEN ERSHIYI SHIJI* [URBAN AND REGIONAL DEVELOPMENT IN CHINA: LOOKING INTO THE 21ST CENTURY] 132-54 (Yue-man Yueng ed., 1993).

⁹ For comparison, the figure for 1995 in nominal terms is RMBY77.4 billion. The exchange rate in 1995 was about US\$1=RMBY8.1.

and setting the rates for urban construction taxes and fees. This approach gave local municipal authorities limited power to raise funds for infrastructure investment and infrastructure maintenance.¹⁰

A second reason for the de-emphasis on urban construction was that it had no strong advocate in China's administrative set-up. Rather, industry was given high priority. Thus decision-making was dominated by industrial ministries. Service facilities were funded and built often as part of the package of industrial projects determined by industrial planners.¹¹

The city planning that existed in the 1950s mostly functioned to design the layout for industrial and related projects and to assist in finding sites for projects already decided upon by economic planners. As a consequence, infrastructure was more likely to benefit specific projects and output than to serve the interests of a larger population. China's national urban development policy was to locate new industrial enterprises in smaller cities, mostly inland. Under this policy, the planned construction of new industry centers was to be in the resource-rich interior. The policy took advantage of the lower infrastructure funding requirements of the smaller cities that were generally given fewer provisions. This strategy allowed the government to reduce its urban infrastructure outlays, and it afforded greater security to the inland provinces.

B. *Changes Since 1978*

In late 1978, China launched its now well-known economic reforms. Inadequate urban housing and commercial facilities were two of the most urgent public concerns in the early reform era. To redress the past neglect of urban infrastructure development and, in the process, regain popularity, the government began to pay attention to these areas. This change in attitude, as well as the leadership's increased appreciation of the critical role of cities in market-oriented regional economic activity, became even clearer in the Premier's Report to the National People's Congress in 1982 in his advocacy for a more market-oriented

¹⁰ Editorial Committee of *Dangdai Zhongguo* Series 1990, Chapter 3, [hereinafter Editorial Committee].

¹¹ Typical of a Soviet-type economy, infrastructural investment, and industrial projects and funds were allocated by individual ministries and channeled vertically. City mayors were generally responsible for industrial output and not for urban public services. The urban planning and construction branches, with limited power and financial resources, were subordinate to economic planning. See BATER, *supra* note 6.

economy.¹² Among the new policies were higher administrative ranks and some autonomy for many cities.¹³

The government also began to recognize the importance of municipal planning vis-à-vis economic planning. The National Conference on Urban Planning, held in 1980, placed mayors in charge of planning, constructing, and managing urban infrastructure within their jurisdictions. All cities and towns were asked to draw up master plans for their physical development. By the end of 1986, 339 of the 353 cities at the time and 1675 of the 1980 county towns had prepared their master plans, most of which had been approved by the respective authorities.¹⁴ Once reestablished, urban planning concerned itself with salvaging the historical relics in the cities from the damage wrought by the Cultural Revolution decade and by haphazard urban construction. Twenty-four cities of historical-cultural value, including one of our study sites, Qufu (the hometown of Confucius), were identified in 1982, and another thirty-eight were added to the list in 1986. These cities received special central grants from the Bureau of Cultural Relics.

The 1980 conference reiterated the national policy of developing urban settlements and signified the government's continuing intent to "control the growth of large cities, rationally develop medium cities and actively promote the development of small cities."¹⁵ The official interpretation of this strategy was that the number of large urban centers and the size of their (nonagricultural) population should be restricted, based on the notion of "optimal" city size espoused by many planners in socialist economies.¹⁶ In this view, large cities were overcrowded, costly, and inefficient, while smaller urban centers were more productive. Considerable debate on this issue has raged among academics in China since the 1980s. Critics favored large cities and, contended that they are generally more productive than smaller cities.¹⁷

Beginning in the early 1980s, China returned to making physical plans for cities, and is currently building a legislative-administrative framework for urban construction. The Regulations of Urban Planning promulgated by the State

¹² Ziyang Zhao, *Report on the Five-year Plan*, in FIFTH SESSION OF THE FIFTH NATIONAL PEOPLE'S CONGRESS 109-85 (1983).

¹³ Kam Wing Chan, *Urbanization and Rural-Urban Migration in China since 1982: A New Baseline*, 20 MODERN CHINA 243-81 (1994).

¹⁴ See Editorial Committee, *supra* note 10, at Chapters 5-6.

¹⁵ See Chan, *supra* note 13, at 243-81.

¹⁶ *Id.*

¹⁷ See Yixing Zhou, *The Relationship Between Urban Industrial Output and Urban Size in China*, 5 JINGJI YANJIU [ECONOMIC RESEARCH] (1988), at 74-79; see also ZHONGHUA BAO, ZHONGGUO CHENGSHIHUA DAOLU YU CHENGSHI JIANSHE [THE PATH OF URBANIZATION AND URBAN CONSTRUCTION IN CHINA] (1995).

Council in 1984 specified procedures for approving and coordinating urban projects. Cities could regulate their own planning within the national framework. The Law of Urban Planning, hailed by many Chinese planning professionals as a major milestone in formalizing city planning legislation in China, was finally approved by the National People's Congress in 1989. In 1991 the first national urban land-use classification and planning standards were issued.

Investment in urban housing shot up in the late 1970s and the 1980s. Roughly 85 percent of urban housing built between 1959 and 1993 was done in the last fifteen years.¹⁸ Total investment in urban construction in the first half of the 1980s soared to RMBY 18.1 billion, about 3.4% of the nation's total investment in fixed assets,¹⁹ and larger in nominal terms than the total investment in the previous three decades.

Funds for urban construction received a big boost in the form of three new taxes, making the increases in urban housing and construction possible. A new urban construction levy of five percent of the industrial and commercial profits of domestic enterprises was introduced in forty-seven cities in 1979 and then applied to a total of 150 cities in 1984. Following the conversion of enterprise profits to taxes (*ligaishui* reform), the levy was replaced by the Urban Maintenance and Construction Tax ("UMCT") in 1985. The UMCT rate was seven percent of the combined value of the product tax, Value Added Tax ("VAT"), and business tax (the so-called "three taxes") for domestic enterprises in cities, five percent in towns, and one percent elsewhere.²⁰

The relative stability of the three taxes made the UMCT a steady source of revenue for urban construction. In 1987 the UMCT generated RMBY 6192 million, or thirty-eight percent of the total UMCF. This broad pattern continued through 1991 and after that, its share started to drop. In 1994, the UMCT was revamped and given a new name, "Urban and Rural Maintenance and Construction Tax." During the 1980s, the Chinese government started to implement other revenue-generating measures. In some cities, the government tried user charges on urban infrastructure, in particular, major municipal works. Wastewater treatment charges began to be collected in more than thirty cities in 1984. In the mid-1980s Guangzhou and Foshan started requiring toll payment for vehicular use of their bridges.²¹ "Infrastructure connection" fees on new construction and new in-migrants (the so-called *zengrong fei*, or fees for

¹⁸ Kam Wing Chan, information collected from fieldwork conducted in China, (1994) (on file with author) [hereinafter Chan Fieldwork].

¹⁹ See Hua, *supra* note 8.

²⁰ See Editorial Committee, *supra* note 10, at 130.

²¹ *Id.*

expanding capacity) were also allowed by the State Council in some cities in 1984. User fees eventually covered all municipal works and many public services throughout the country. Indeed, taxes and unregulated fees on urban land development have proliferated to an unacceptable level.²²

By the early 1990s, charging *zengrong fei* on permanent migrants and new development by local governments had become a popular practice almost everywhere. In many places, this was combined with the sale of *hukou*, or urban residency rights. In the 1994 interviews, we were told that 3,000 new household registers were issued by Qufu to migrants at RMBY 3000 per head. These new registers raised RMBY 9 million, and half of the funds reportedly went to the UMCF account. Anshun had sold 500 urban *hukou* since it started selling them in 1993, and most of the RMBY 1.5 million raised was to be used to finance urban construction. By early 1994, according to one source, three million urban resident household registration books had been sold to peasants throughout the country, generating revenue of RMBY 25 billion.²³ This revenue source was not favorably viewed by the central government. Despite repeated clampdowns,²⁴ sale of urban resident rights remains a common practice in many cities today.

Taxes and fees provided increased revenue for urban construction. However, for long-term reform, China needed to change the urban land system in order to promote efficient urban land use and tie it to financing urban infrastructure. The inefficiency in land use resulted largely because land was administratively allocated and free of charge. To address these issues, China began to gradually develop an urban land market by charging for the use of land.

Land-use fees were first tried out in 1981 in Shenzhen on projects funded by foreign sources. In 1987 the sale of land-use rights was tried first in Shenzhen and later in Shanghai, Tianjin, Guangzhou, Xiamen, and Fuzhou.²⁵ In 1988 the transfer of land-use rights was legalized and written into the revised Chinese Constitution.²⁶ In 1990 the Chinese government formally introduced market mechanisms such as bidding, auctioning, and negotiating to set a price for land-use for a period of forty to seventy years.²⁷ The idea was that land-use rights on

²² As an illustration, the array of fees and taxes levied on new development in Qingdao, Shandong is given in Table 1.

²³ See Chan, *supra* note 13, at 243-81.

²⁴ Ministry of Public Security et al., *Notice on Steadfastly Banning the Continuation of Sale of Non-agricultural Household Registers*, in SHOUFEI JIJIN GUANLI SHOUCHE [A HANDBOOK FOR ADMINISTERING CHARGES AND FUNDS] 346-48 (Ding Xiangjue ed., 1994).

²⁵ The first land use right was auctioned off in Shenzhen that same year. CHINA DAILY, Sept. 26, 1994, at 4.

²⁶ MU ZHUANG ET AL., FANGDICAN ZHIDU [THE SYSTEM OF REAL ESTATE] (1993).

²⁷ STATE COUNCIL, TEMPORARY REGULATIONS ON SALES AND TRANSFERS OF URBAN LAND-USE RIGHTS (1990).

leasehold were transferable, but ownership remained in the hands of the state. This practice was modeled on the relatively successful experience of Hong Kong and, to some extent, was driven initially by the opportunity to cater to the Hong Kong and overseas markets. By 1992, the sale of land use rights (as in Hong Kong, this is often called "land sale") had extended to individuals, foreign joint ventures, and domestic companies and also covered many cities.²⁸ By 1994, land-use rights had been sold in all provincial units except Tibet.²⁹ Although these land sales regulations, still in place today, mark a step towards greater efficiency, they are still quite rudimentary and experimental.³⁰ The transfer of land-use rights varies in practice from place to place.³¹

By the end of 1993, about 44,000 land sales had been transacted and 79,000 hectares of land had changed hands.³² This was about ten percent of the nation's new urban land supply, but the percentage went as high as fifty percent in Guangdong and even higher in Zhuhai, and was close to 100 percent in Shenzhen.³³ In Shandong, this percentage increased from about four percent in 1992 to about twenty to twenty-five percent in 1993.³⁴ Guizhou, on the other hand, has been less successful in attracting land sales. Guiyang received RMBY 20 million from land sales in 1993 and expected to generate RMBY 70 million in 1994, while Anshun had not yet begun selling land by late 1994.

Land sales can be a significant source of public revenue.³⁵ The *Economic Information Daily* reports that local governments in some coastal cities in China derived eighty percent of their total revenue from land sales.³⁶ In many other cities, a share of twenty percent is more common.³⁷ Intense speculation, especially in the "development zones" and coastal cities, combined with the urge of many local governments to make "quick bucks," created a property boom in 1991 through 1995 and pushed up land sales and prices in some cities.

From 1994 through 1996, the percentage of state-owned land leased by market mechanisms increased and stabilized at around thirty to forty percent of

²⁸ David E. Dowall, *Establishing Urban Land Markets in the People's Republic of China*, 59 J. AM. PLAN. ASS'N 182 (1993).

²⁹ TA KUNG PAO, Sept. 21, 1994, at 40.

³⁰ See ZHUANG ET AL., *supra* note 26.

³¹ WORLD BANK, CHINA: URBAN LAND MANAGEMENT IN AN EMERGING MARKET ECONOMY (1993).

³² ECON. INFO. DAILY, Sept. 2, 1994, at 1.

³³ Chan Fieldwork, *supra* note 18.

³⁴ *Id.*

³⁵ Jonathan R. Schiffer, *State Policy and Economic Growth: A Note on the Hong Kong Model*, 15 INT'L J. URB. & REGIONAL RES. 180-96 (1991); Anthony Gar-On Yeh & Fulong Wu, *The New Land Development Process and Urban Development in Chinese Cities*, 20 INT'L J. URB. & REGIONAL RES. 330, 330-53 (1996).

³⁶ See ECON. INFO. DAILY, *supra* note 32.

³⁷ See BAO, *supra* note 17.

the acreage of the total (mostly urban) supply. These transactions generated total revenue of RMBY 128.4 billion.³⁸ The official figures are obviously conservative ones, as many land transactions were not reported to the central government. But the available figures suggest that much of the land was sold at bargain prices—the implied average price of land was only RMBY 95.5 per square meter (about US \$1.2 per square foot).³⁹

As far as using tax on property as a means of financing urban construction, of all the taxes in China, two bear some characteristics of the property tax in the West: the Real Estate Tax (reintroduced in 1986) and the Urban Land Use Tax ("ULUT," newly introduced in 1988). Both taxes, however, only cover buildings and land used for commercial purposes and exclude owner-occupied residential buildings and land and those buildings leased by foreign nationals and enterprises.⁴⁰ The ULUT is a fixed-amount tax, ranging from RMBY 0.9-18 in small cities to RMBY 1.5-30 per square meter in large cities. Before 1994, the central and local governments shared the revenue from this tax equally. The local governments thus had little inducement to implement the tax, which, as of 1992, had still not been applied in a full one-third of cities and towns. In 1994, the ULUT was renamed "land use tax" and changed into a local tax to stimulate local tax efforts. A new tax on the appreciated value of land to begin in 1994 had been mothballed in many provinces, including Guangdong, apparently due to opposition from coastal provinces and overseas property investors.⁴¹ There are still many problems in implementing this tax in China today.⁴²

Besides fees and taxes, another increasingly popular source of funds for urban infrastructure is foreign private-sector investment, especially of the build-operate-transfer ("BOT") type. The BOT scheme calls for a private company to finance the investment, provide working capital, build the project, run it long

³⁸ See Table 2.

³⁹ At first, the central government was to receive 60% of receipts and local governments, 40%. The formula was later changed to 40% for the central government and 60% for the local governments, and local governments were required to set aside 20% for urban construction and land development. Ta Liu, *On the Establishment and Development of Land Market in China*, 2 JINGJI KEXUE 18-23 (1993). Even at this 40:60 split, ample opportunities for rent seeking and profit sharing between developers and local officials made the scheme hard to enforce. Also, local governments, which absorbed most of the land development costs, resented the large share claimed by the central government. The sharing of the land sale proceeds has since increasingly favored local governments. It was changed to 32:68 and then to 5:95 in 1992. In order to give local governments full incentive to collect and report these land revenues, under the new tax system of 1994, local governments get to keep all the proceeds. *Id.*

⁴⁰ Foreign enterprises must pay land use "fees" instead.

⁴¹ *Government Reportedly Yields to Provinces in Land Tax Row*, KNIGHT-RIDDER, Feb. 17, 1994. MING PAO, Sept. 30, 1995.

⁴² Gang Sun, *A Preliminary Study of Land Tax System*, 1060 JINGJI YANJIU CANKOU [ECON. RES. REFERENCES] Jun. 29, 1997, at 2-20.

enough to repay debts and achieve a return on equity, and then transfer the project back to the host government.⁴³ Foreign investors began funding urban infrastructure in China in the mid-1980s. Among the early examples was the development by Hopewell Hong Kong of power stations and a toll expressway in Guangdong. Foreign investment has broadened in recent years to encompass many inner-city redevelopment projects in Wuhan, Guangdong, Beijing, and Tianjin. In these projects, private developers renovate a certain part of the old city in return for permission to develop other more profitable commercial land.

The relative importance of the various domestic sources of revenues in 1994 is shown by the following figures:

	<u>Amount (in billion yuan)</u>
Sale of land use rights	56.47
UMCT and PUS	15.75
Real Estate Tax	6.00
Urban Land Use Tax	3.25

The above amount for land sale proceeds is a lower estimate; the State Land Administration Bureau's figure is about RMBY 80 billion for 1994.⁴⁴

III. URBAN HOUSING DEVELOPMENT AND REFORMS

A. *Public Housing Reform Programs*

Housing has been another problematic area in Chinese cities.⁴⁵ Housing development and reform in China in the 1980s through the early 1990s occurred in two stages. The first stage, from 1981 through 1985, focused primarily on increasing the supply of housing by inviting new sources of finance, including private investment. The second stage launched in 1986 was concerned with the more complicated problem of adjusting rents on the huge stock of public housing, as well as selling off some of its public housing. In 1988 the Leading Group for Housing Reform ("LGHR") of the State Council laid out a plan to commercialize urban housing. Through this plan, the LGHR would disclose the extent of

⁴³ GHK LTD., PRC - URBAN SECTOR REVIEW: A REPORT FOR THE ASIAN DEVELOPMENT BANK (1995).

⁴⁴ See Sun, *supra* note 42.

⁴⁵ For a detailed account of its reforms in the 1980s and the early 1990s, see CHRISTINE WONG ET AL., ECONOMIC REFORM AND FISCAL MANAGEMENT IN CHINA (1995); Victor N. Shaw, *Urban Housing Reform in China*, 21 HABITAT INT'L 199 (1997).

housing subsidies granted to urban employees, reform the investment system so that housing construction is treated as commodity production, set up a house-financing fund, and readjust the production structure to stimulate the development of a real estate market.

In 1991 the State Council renewed the reform proposals of 1988, again calling for rent system reforms and the sale of public housing. However, the measures to increase rents made only limited progress. The housing rents accounted for about one percent of the average urban household expenditure in 1994—the same as in 1985.⁴⁶

At the same time, especially in coastal provinces like Guangdong and Fujian, there was no slowdown in sales of public housing at huge discount prices, most of which was below the bottom price of RMBY 120 per square meter proposed by the State Council in 1988.⁴⁷ According to the Ministry of Finance, by the end of 1993 about twenty percent of housing stock (including those owned by enterprises) had been sold to individuals.⁴⁸ This massive transfer of public property to individuals at bargain prices prompted the State Council in late 1993 to ban the sale of public housing and reassess the program.

B. *Current Situation*

Despite the sluggishness of the 1980s reforms, production of urban housing has progressed rapidly, especially in the last three years. The rate went up from just under 200 million square meters in 1989 through 1991 to over 350 million square meters in 1994, and 394 million square meters in 1996.⁴⁹ The average per capita urban housing floor area (living area) jumped from 3.6 square meters in 1978 to 6.9 square meters in 1991, and further to 8.5 square meters in 1996.⁵⁰ This means that China has already reached its target of eight square meters per capita for the urban population, three years earlier than was planned. However, urban housing is unequally distributed

⁴⁶ STATE STATISTICAL BUREAU, ZHONGGUO TONGJI NIANJIAN [STATISTICAL YEARBOOK OF CHINA] (1995). The average rent on public housing in 1993 was still only RMBY0.30 per square meter (compared with RMBY0.13 in 1980), although some cities like Shenzhen managed to raise the average rent on public housing to RMBY4.9 in 1994. Chan Fieldwork, *supra* note 18.

⁴⁷ In Beijing, public housing that had cost an estimated RMBY800 per square meter to build was being sold at an average of RMBY188.

⁴⁸ The corresponding Leading Group for Housing Reform ("LGHR") figure was only 10%. Chan Fieldwork, *supra* note 18.

⁴⁹ STATE STATISTICAL BUREAU, ZHONGGUO TONGJI NIANJIAN [STATISTICAL YEARBOOK OF CHINA] 324 (1997).

⁵⁰ *Id.*

and the allocation system is fraught with problems. As of 1994, 4.4 million households (down from 5.3 million in 1991) were still living on less than four square meters of floor area per capita. This figure, of course, totally excludes the housing needs of the "temporary" population in cities and towns and related problems, an issue that China's government has not yet come to face.

The sale of public housing with partial property rights, banned in 1993, resumed in some cities in the first half of 1994. The current objective is to sell public housing to workers at a "standard price." An official in the Ministry of Finance ("MOF") said that the "standard market price" of a unit consists, on the average, of three roughly equal factors: construction costs, the cost of the land itself, and other infrastructure services (in the form of taxes and fees). A policy promulgated in December 1994 substantially raised the sale prices of the public housing.⁵¹

Cities are selling off their public housing at varied paces and prices, reflecting differences in location and quality of housing. In Qufu, sales of public housing at an average of RMBY 200 per square meter were well underway in the summer of 1994, and the city expected to sell off all its public housing by the end of 1994. In Qingdao, sales were to begin in late 1994, at the standard price of RMBY 670 per square meter. The program in Guiyang and Anshun in Guizhou began in 1993. The standard price in Guiyang was RMBY 220 in 1994; in Anshun it was RMBY 207 in 1993 and RMBY 460 in 1994. Discounts, typically thirty percent off the standard price in Guiyang, were often given to city residents, existing occupants, and those who paid cash. In the last three years, various initiatives have been tried in different cities. In Guangzhou, owners of public housing who profited from previous discounts have been asked to repay part of the difference. The municipal government also pledged to replace the housing entitlement and assignment policy with an indirect housing subsidy program.⁵²

Modest progress has been made in raising the rentals for public housing, at least judging from the experience of cities studied.⁵³ In 1996, housing accounted for about three percent of the average urban household

⁵¹ MING PAO, Dec. 3, 1994, at H3.

⁵² SING TAO DAILY, Oct. 13, 1997, at A7.

⁵³ Qingdao raised rents from RMBY0.18 per square meter in 1992 to RMBY0.53 in 1994 and planned to increase them further to RMBY1.3-1.4 (about the costs of maintenance) in 1995. Rents are expected to reach RMBY3.3 (roughly 15% of the average income of a double-worker family) in 2000. In 1994 in Guiyang, public housing rent was RMBY0.40 per square meter and was to increase to RMBY0.80 shortly. Rents in Anshun were RMBY0.25-0.70 in 1994 from the previous year's level of below RMBY0.10. In the face of rising inflation, the State Council imposed temporary price controls, which forced city governments to defer bolder rent reforms.

expenditure.⁵⁴ While rents remain low, sale prices are very high relative to incomes. Lump-sum fees and charges levied on new urban housing constitute one factor of the high sale prices. The situation is aggravated by a very rudimentary mortgaging system.⁵⁵ Rental public housing is far more tempting than ownership. In the mid-1990s, as a privatized “commodity housing” market started to expand, often beyond the reach of most families, a low-cost housing program (*anju gongcheng*) was initiated to cater to lower income families.

IV. URBAN INFRASTRUCTURE SERVICES: LEVEL OF PROVISION

Table 3 presents the latest available figures about urban infrastructure provision in the five cities studied. National and provincial averages are also included. These figures were taken directly from reports provided by the Chinese urban construction authorities. Following the official practice, the population base used in computing “per capita” averages and coverage is the “nonagricultural” population of the cities, i.e., “per capita of nonagricultural population.” This population figure is smaller than the actual resident population of the cities.⁵⁶ Therefore, the real per capita provision will be lower than the figure in the table.

Direct numerical comparisons of the level of provision in the cities in China with world “averages” are impossible. Unlike many other economic statistics, cross-country urban infrastructure statistics are not systematically collected and standardized for that purpose. Even where international statistics exist for certain sectors,⁵⁷ they do not directly compare with Chinese statistics. Nevertheless, the existing information suggests that, on a per capita basis, the level of urban infrastructure services in Chinese cities approaches that in lower middle-income countries.⁵⁸ This slightly higher position compared with China’s overall economic position is hardly surprising, given the construction boom in China since the early 1980s and the higher priority accorded to the urban sector in the overall development strategy.⁵⁹

Although the very high percentage of the population with access to piped water would put China in the group of upper middle-income countries,

⁵⁴ STATE STATISTICAL BUREAU, ZHONGGUO TONGJI NIANJIAN [STATISTICAL YEARBOOK OF CHINA] (1995).

⁵⁵ SING TAO DAILY, Mar. 31, 1996, at A14.

⁵⁶ See Chan, *supra* note 13.

⁵⁷ See, e.g., WORLD BANK, WORLD DEVELOPMENT REPORT 1994 (1994); WORLD RESOURCE INSTITUTE & INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND DEVELOPMENT, WORLD RESOURCES 1994 (1994).

⁵⁸ See, e.g., WORLD BANK, *supra* note 57, and Table 3.

⁵⁹ See Chan, *supra* note 13.

the government classified half of the cities in China as water-deficient. Moreover, about 110 of these cities are judged to be in "serious water deficit." Compared with many major cities in the world, the urban sector of China also ranks low in per capita water consumption, similar to those in cities in low-income or lower middle-income Asian countries.⁶⁰

Although Shandong and Guizhou are almost at the two ends of China's provincial per capita GDP, their cities differ only slightly in the level of provision of many, perhaps basic, infrastructure services.⁶¹ These services, except for piped water supply, are provided at levels that approximate national averages. In fact, Shandong's and Guizhou's per capita tax revenues for urban maintenance (i.e., UMCT and PUS)⁶² reflect the national average.⁶³

Yet at this broad level, one finds noticeable differences in some sectors, apparently as a result of variations in per capita income and city size, as well as geographic factors.⁶⁴ For example, Shandong's cities enjoy significantly more paved roads, waste disposal, and gas supply than cities in Guizhou. Except for the higher gas consumption in Shandong, which is likely attributable to the climatic differences, Shandong's superior position reflects its affluence. Nevertheless, the average urban resident in Guizhou still has better access to tap water and public transportation.

An earlier study of the 1992 and 1993 situation found a clear, positive relationship between city population size and the level of most infrastructure services.⁶⁵ For example, in those years, among the three cities in Shandong surveyed, Qingdao, the largest, had the highest average level of most services. Qufu, the smallest city, had the lowest average level. Taian, the middle-sized city, had a level in between those of Qingdao and Qufu. This relationship between city size and the level of services appears less clear now, as in the 1995 Shandong sample.⁶⁶

⁶⁰ China probably shares a similar ranking with these Asian countries in the areas of public transportation, waste treatment, telecommunications and electricity for domestic use.

⁶¹ Such aspects include housing floor area, piped water consumption and coverage, bus and density of sewers.

⁶² Table 3 (a) Column 4.

⁶³ Shandong and Guizhou fall slightly above and below the national average, respectively.

⁶⁴ Shandong has a much colder winter than Guizhou. More definitive assessments will have to be based on detailed information about the spatial configurations of the cities, as well as the manner in which these statistics are defined, especially in view of the enormous complexity of the definition of Chinese urban boundaries.

⁶⁵ See Kam Wing Chan, *Urbanization and Urban Infrastructure Services in the PRC*, in *FINANCING LOCAL GOVERNMENT IN THE PEOPLE'S REPUBLIC OF CHINA* (Christine Wong ed., 1997) at 83-125. However, this positive relationship does not exist for housing and paved roads. *Id.*

⁶⁶ Though Qufu still has the lowest level in most areas, Qingdao and Taian are very close in a number of aspects.

However, in the Guizhou case, the difference between the big city, Guiyang, and the small city, Anshun, is remarkable. As in 1992 and 1993, Anshun continued to face serious water shortage problems in 1995; its per capita water consumption was still extremely low, about half of the national average. This level is a significant improvement over the situation in 1992 and 1993, when its level was only a quarter of the national average.⁶⁷ In broad terms, one can argue that there still exist differences between large and small cities, especially in the less developed province Guizhou. The per capita availability of funds for urban construction, across city size, may explain these differences.⁶⁸

V. FINANCING URBAN INFRASTRUCTURE SERVICES

A. *International Experience*

Private participation in the provision of infrastructure was important in the nineteenth century and the first half of the twentieth century in many countries, but the overwhelming trend until the early 1980s was government or parastatal provision.⁶⁹ This trend applies equally well to urban infrastructure. Owing to the characteristics of urban public services (externalities, public goods, and economies of scale), today many urban public services are provided by different levels of governments, agencies and semi-public bodies in many market economies. The latest trend, however, has been greater use of a market approach and private participation in financing urban infrastructural projects.

One cannot accurately generalize the international patterns of all urban services, given the complexity and incomparability of government structures, preferences and accounting systems, and definitions used in different countries. Yet, one can look at the way local governments, who retain primary responsibility over the bulk of urban public services, finance their expenditure. This helps establish the "average" revenue patterns, though it in no way implies that the pattern is the most desirable. Rather, quite the opposite is true. There is probably significant room to alter the current patterns to achieve greater efficiency.

⁶⁷ See Chan, *supra* note 65.

⁶⁸ Table 3 (a) Column 4.

⁶⁹ See WORLD BANK, *supra* note 57.

Remy Prud'homme's study of local government⁷⁰ revenue statistics in nine Western industrial countries, almost all in the early 1980s, concluded that, excluding borrowing, local taxes are the most important source of financing.⁷¹ The IMF data he assembled indicate that local taxes contributed a median share of forty-one percent, with a range from 11.2% to 69.2%. "Grants and subsidies" came next, with a median share of thirty-five percent. The remaining category of "other," consisting largely of user-charges, accounted for a median share of twenty-one percent. If one were to include non-government entities providing urban services, Prud'homme suggested that the above ranking would be reversed.⁷²

It is hard to work with the current data on borrowing to generate a precise "average" share, but borrowing is widely used as a means of financing urban public services in industrial countries. Local governments in the West account for a large share of the public debt, largely due to the capital-intensive nature of most urban infrastructures. Current government revenues often cannot meet such huge capital outlays, which necessitates borrowing from the market or from higher-level governments to make up the differences.

Generally speaking, user-charges are used for those services that are easy to sell at a price, such as electricity and piped water.⁷³ Local governments supply other services and finance them by local taxes. But local taxation cannot, in most counties, cope with the growth of expenditures on such services. Local governments then turn to borrowing or transfers from other levels of government, resulting in urban public services being directly provided by central or regional governments.

The situation in developing countries varies. Government structures, responsibilities of local governments, and population size of local urban administrative units range tremendously from one country to another, resulting in a great variety of financing patterns and preferences. Owing to the lack of comparable data on revenues of urban governments in developing countries, one cannot easily develop a systematic and straightforward analysis of the revenue structure and trends. An attempt to analyze these trends was made by Roy Bahl and Johannes Linn, who studied the revenue patterns by using case studies of

⁷⁰ Excluding other non-government entities delivering urban services, such as water and electricity authorities.

⁷¹ Remy Prud'homme, *Financing Urban Public Services*, in 2 HANDBOOK OF REGIONAL AND URBAN ECONOMICS 1179 (Edwin S. Mills ed., 1987).

⁷² *Id.* User-charges are the most important source of urban public service financing, followed by central government grants and subsidies (many utility companies receive transfers and grants from the central and regional governments), and, finally, local taxation. *Id.*

⁷³ *Id.*

about forty, not necessarily representative, cities in developing market economies in the 1970s and 1980s.⁷⁴

Table 4 reports the percentage share based on the median. Bahl and Linn distinguish locally-raised from external revenues (including borrowing) to differentiate the degree to which urban governments draw on the resources generated by the urban economy. A median share of seventy to eighty percent of local expenditure is financed from local sources. Most cities' share in this type falls typically within sixty to ninety percent. In other words, locally-raised resources constitute the major financial source of urban public services. The variation in the share is negatively correlated to the breadth of expenditure responsibilities of local governments. Those with broader expenditure responsibilities tend to rely more on external sources, typically transfers from higher-level governments. The locally financed share declined in the 1980s.

Taxes account for over half of the locally-raised revenues in the "average" city, but estimates vary widely. In some cases, cities that provide more "general" services⁷⁵ tend to rely heavily on local taxes. Western industrial countries, on the other hand, use benefit and user-charge financing in cities where urban governments are heavily involved in providing public utilities, such as water and electricity. The use of user-charges has increased in importance since the late 1970s.

Local property taxes dominate the revenue structure in almost all cities under survey—the median share in the total local taxes is above forty percent. Other common taxes include levies on motor vehicles and entertainment, industry and commerce taxes, as well as sales tax. These non-property taxes insignificantly add to most cities' revenue base. Since the 1970s, cities have shifted from property-based to consumption-based taxes.⁷⁶

In the 1980s, external financing (mostly grants and shared taxes) comprised, on average, about thirty percent of all local revenues in the cities sampled. This low share indicates a relatively high self-sufficiency on the part of the urban governments in market developing economies. Loan financing generally is the smallest revenue source, contributing less than ten percent to total financing, in contrast to counterparts in Western advanced countries, which for the most part borrow to fund their capital outlays.

Based on a smaller sample of twenty-one cities where time-series data are available, Bahl and Linn also found a wide variety in patterns of change.⁷⁷ A

⁷⁴ ROY BAHL & JOHANNES LINN, *URBAN PUBLIC FINANCE IN DEVELOPING COUNTRIES* (1992).

⁷⁵ Such as education, public and health services.

⁷⁶ Less common taxes include local income taxes and property-transfer taxes.

⁷⁷ See BAHL & LINN, *supra* note 74.

general pattern emerged: for those cities where per capita expenditure increased during the 1970s, locally-raised resources contributed the most. In those cities where per capita expenditure declined, locally-raised resources were the principal culprit. Locally-raised revenues were closely related to urban government expenditure, hence the ability of urban government to increase the services provided. Bahl and Linn concluded their study by pointing out that the existing revenue capacity of urban governments in many developing countries has not yet been fully exploited.⁷⁸ The revenue instruments seemingly most under-utilized include property taxation, motor vehicle taxation, betterment levies, and user charges. In Western industrial countries, however, user charges are probably the only feasible alternative to the unpopular method of raising local taxes.

B. *China*

China finances local government in a fundamentally different manner from most other countries, especially in the case of municipal government. In most other countries, cities do not raise enough money from local taxes to finance their expenditures, so higher levels of government must issue grants to make up the difference. In China, this flow is reversed. On average, cities collect more in taxes than they spend and can remit substantial funds upward to the central government. Formally, these upward remittances consist of tax revenues that either belong to the central government or are shared between central and local governments.⁷⁹ Continually renegotiating the base upon which taxes are shared, however, destroys any real concept of ownership of tax revenue. This means that, for China, it is inappropriate to distinguish between "locally-raised revenue" and "revenue from external sources" in the same way as in Table 4.

It is impossible to obtain total public expenditure data for China that exactly correspond to those in Table 4. Table 5, though, provides one version of data on the financing of urban construction in China. These are official figures released by the Ministry of Urban Construction based on a narrower definition of expenditure than in Table 4.

Table 5 shows the revenue composition of urban construction and maintenance in 1991, 1993 and 1995. At the national level, in the latest figures available (1995), "others" (mostly land sales, land use fees, and infrastructure connection fees collected from new migrants) represent the largest source

⁷⁸ *Id.*

⁷⁹ See generally FINANCING LOCAL GOVERNMENT IN THE PEOPLE'S REPUBLIC OF CHINA (Christine Wong ed., 1997).

(44.8%), followed by local taxes (24%) obtained from the two urban construction-related taxes (UMCT and PUS). The next three important sources are local grants, user charges, and domestic loans. Each of them makes up about six to ten percent. In the sample cities, the average (mean) pattern indicates taxes are the largest source (36.9%), followed by "others" (26.9%) and local grants (15.4%). Of course, the pattern varies wildly among the five cities. Generally, it appears that smaller cities do not generate as much funds from the "others" category as larger ones do. Contrast, for instance, Anshun (1.2%) with Guiyang (57.1%), two cities in the same province. Hence, it appears that smaller cities have to rely more on tax revenues than the extra-budgetary sources of assets sales and other funds. Unlike other countries, central grants play a very small role in financing urban construction at the local level. Qufu is an exception, where its special status as a historic city (birthplace of Confucius) has qualified it for central grants earmarked for historical preservation.

Table 5 also shows how the pattern of finance has changed in the first half of the 1990s. The total revenue about tripled for all the cities; the sample shows a similar, though less impressive, growth (about 2.5 times) in the same period. This quite favorable revenue condition has spawned growth rates higher than the inflation rate and urban population growth rate combined.⁸⁰ A major factor of revenue growth is the explosive revenue expansion in the "others" category, whose share rose from about one quarter in 1991 to just slightly less than half in 1995. The sample cities have witnessed the same trend, though the share of this category remains at a lower level (twenty-seven percent).

VI. CONCLUDING REMARKS: MAJOR ISSUES

A. *Demand Side*

Undoubtedly, China has made great strides in providing urban infrastructure services, as seen in the growth in per capita provision of most types of service in almost all of the cities in the last ten years.⁸¹ The supply of gas and bus services has grown fastest, both nationwide and in the five cities studied. Despite these improvements, many urban infrastructure services⁸² still fall short of the demand.

⁸⁰ Assuming an average inflation rate of 15% and urban population growth rate of five percent per year.

⁸¹ See Chan, *supra* note 65.

⁸² Notably in water supply, public transportation, telecommunications, electricity supply, sanitation and fire services.

These shortfalls will worsen as urbanization proceeds. In the past ten years, actual urban population growth rate averaged about five percent per year. This trend will likely continue, and the urban population will more than double, from the 359 million in 1996 to about 750 million by the year 2010, making China a predominantly urban society.⁸³ Rising per capita income, especially in the cities, will also fuel the demand for better urban infrastructure services. Such growth poses critical issues of financing infrastructure maintenance and investments, necessary for economic growth and a better quality of life.

B. *Financing Side*

The Asian Development Bank has estimated that to meet the increased demand, China would need to invest more than \$500 billion over the next ten years to improve its transportation and communications infrastructure alone.⁸⁴ Most of these investments will have to favor urban centers. At present, urban governments in China have insufficient budgetary autonomy for raising revenues and allocating expenditures. This often leads to heavy reliance on ex-budgetary sources, as in the case of financing urban infrastructure services. These practices are often erratic and fraught with problems from both efficiency and equity points of view.

Currently, funds for urban construction in China, and all the cities visited, come from taxation levied largely on enterprises, and from asset (land) sales. Urban households, who benefit from many municipal services, in general have not paid the full costs of the services. In line with the principle of making the users pay, more revenue needs to be raised from users' fees and taxes, especially from the household sector. The recent consumer boom in major cities indicates that the average urban household can pay significantly more for housing and municipal services than generally perceived.

More fundamentally, a stable system of local taxes (and user charges) needs to be implemented. Based on a redefinition of the role of local governments, these local levies should directly relate to the benefits generated by municipal services. International experiences and local conditions suggest that China should consider taxing land, and residential and business property, to create a stable, lasting source of local government revenue for most urban centers in coming years. A tax on immobile or largely immobile factors has many

⁸⁰ See Chan, *supra* note 13.

⁸⁴ S. CHINA MORNING POST, May 6, 1995, at B-5.

advantages as a local tax. Such a tax generally takes the form of an annual or quarterly charge, calculated as a percentage of the land or residential property value.⁸⁵ This type of tax has only a minor undesirable distortionary effect. Generally, it places the burden on those with a greater ability to pay. The taxes also tie closely to the benefits accrued to taxpayers.⁸⁶ As the city develops, land/property values will increase, along with the revenue base of town government. A stable system will reduce incentives for the hasty sale of state assets, such as land and housing, and the overuse of users' fees, such as road tolls and multiple fees on new urban construction.

C. *Management Side*

While all levels of government, including those of cities visited, recognize the importance of financing, management is equally crucial and should not be overlooked. The neglect of management, traditionally a weak point in most socialist economies, is a legacy of the conventional physical planning mentality where expansion (construction) overshadows efficiency (better management). Management includes regulating demand to reduce excessive and wasteful use. For example, piped water consumption, underpriced in most cities in China, is excessive in many places, even in the face of general water shortages. One may persuasively argue that China should raise urban water rates, especially considering today's actual, not officially reported, urban incomes.⁸⁷

Similarly, better management can increase the efficiency of use of most urban facilities. An obvious case is the use of urban roads and the lack of any effective traffic management. In fact, among the five cities visited in Shandong and Guizhou, only one (Guiyang) has created a separate entity to look after the day-to-day maintenance of infrastructure services. In other cities, this task falls to the urban construction authorities, who at times seem more interested in building facilities than in making them work.

D. *Equity Side*

As pointed out before, the average growth rates in urban infrastructure service provision are overstated because they do not take into account the

⁸⁵ Contrast this tax with the one-time lump-sum approach of many places in China which charge a relatively hefty "infrastructure capacity expansion fee" (*zengrong fei*).

⁸⁶ In the form of increased property value because of better urban services, for instance.

⁸⁷ See GHK, *supra* note 43.

growing segment of urban residents registered as “temporary” households. This group includes the “floating population,” whose size has grown from a few million in the early 1980s to about 100 million by 1994.⁸⁸ While not entitled to government-provided urban services, these people cannot be totally and effectively excluded from sharing some of the services, such as roads, public transportation, and water supply. In any case, dividing the population within cities into those with urban entitlements and those without will inevitably exacerbate social conflict. This discrimination against new migrants from the countryside reflects a strong urban bias in the overall approach.

On a per capita basis, service provision varies significantly between cities (even considering only the “full-status” urban population). Political and economic factors, often differences in revenue, tip the balance in favor of larger centers. Besides being inequitable, this systematic bias is also inefficient because it distorts fair competition between urban centers and regions. Moreover, this bias underlies the significant hierarchical brain drain from the countryside to small centers and to larger metropolises, as has happened in many Third World countries. The depletion of well-educated human resources in areas outside major metropolises harms long-term national development. To fully exploit the nation’s potential, China must ultimately have a more decentralized pattern of urban development.

Finally, for the same service, urban residents in new projects and those in existing structures pay different charges. The unavailability of long-term borrowing has forced many local governments not only to sell assets, but also to impose most of the costs of investment on the taxpayers they catch, often owners and occupants of new developments. This practice unfairly penalizes current and future generations that cannot, like previous generations, avoid paying. These huge initial costs also impede the development of China’s fledgling housing market.

⁸⁸ Kam Wing Chan, *Internal Migration in China: An Introductory Overview*, 7 CHINESE ENV'T & DEV. 3-13 (1996).

TABLE 1: COSTS, FEES, AND LEVIES ON NEW URBAN LAND IN QINGDAO, SHANDONG: AN ILLUSTRATION, 1994

- A. Comprehensive Construction Costs—about RMBY1,000/m²
 - including site formation and land resumption (RMBY600/m²) and compensation for loss of vegetable land agricultural work (RMBY400/m²)
- B. Land Development Fee—about RMBY200-RMBY250/m²
 - the so-called “*da peitou*” fee for the construction of road, water supply, and electric power systems.
- C. Urban Infrastructure Connection Fees—RMBY200/m²
 - mainly payments for water and drainage connections and other urban infrastructure
- D. Other fees charged by city departments—totaling about RMBY200/m²
 - including civil air defense (*renfang*) fee (RMBY13/m²); retail network fee (RMBY14/m²); gas connection (RMBY3,000 per unit); central heating supply fee (RMBY100/m²); telecommunications fee (RMBY14/m²); electricity capacity extension fee (RMBY900/KW); and tap water capacity expansion fee
- E. Tax for Regulating the Direction of Investment in Fixed Assets—collected by the central government
 - 5% of investment amount for housing, 15-30% for hotels, and 0% for public facilities
- F. Other taxes and levies
 - arable land use tax; agricultural land protection tax; new vegetable land development tax; basic arable land protection funds; road construction surcharge for nonagricultural development; and land differential rent (*jicha dizhu*)

Land sale (*churang*, or conveyance) price = A + B + C + F

Source: Interview with officials, in Qingdao (1994).

TABLE 2. TRANSFERS OF USE RIGHTS OF STATE-OWNED LAND, 1994-96

	REVENUE (Billion Yuan)						Total	Revenue Per m ²
	No. of Transactions	Area (ha.)	Land Acquisition Fees	Development Fees	Lease Fees	Others		
1994	42,076	57,338	16,653	7,406	12,528	19,887	56,474	98.5
1995	105,473	43,092	8,188	4,876	18,367	7,341	38,772	90.0
1996	103,921	34,048	6,260	4,521	17,203	5,184	33,168	97.4
1994-96	251,470	134,478	31,101	16,803	48,098	32,412	128,414	95.5

Source: STATE STATISTICAL BUREAU, ZHONGGUO TONGJIANJIAN [STATISTICAL YEARBOOK OF CHINA] 1995, 1996, & 1997

TABLE 3. URBAN INFRASTRUCTURE SERVICE IN 1995

	Population & Revenue					Area of City					Per Capita				
	Total Pop.(1000)		Non-Agri. Pop.(1000)		Area of City (km ²)	Tax		All Sources			Density of Sewers	Wastewater Treatment	Green Areas (m ²)	Green Areas (%)	Waste Treatment
	1	2	3	4		5	6	7	8	9					
ALL CITIES IN CHINA	377899	184900	1171698	100.4	418.8										
Shandong	46328	11468	78695	112.7	270.7										
Qingdao	2184	1467	1316	132.9	532.9										
Tai'an	1456	338	2089	44.9	171.6										
Qufu	614	112	39.2	157.8											
Guizhou	8122	2593	25669	97.1	211.5										
Guiyang	1685	1150	2436	124.5	341.6										
Anshun	728	210	1710	34.0	47.2										

(b) Level of Provision (Based on NP)

	Housing UA		Housing LA		Tap Water (vol.)		Tap Water (%)		Buses		Gas (%)		Paved Roads		Density of Sewers		Wastewater Treatment		Green Areas (m ²)		Green Areas (%)		Waste Treatment		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
ALL CITIES IN CHINA	11.8	8.1	195.4	93.0	7.3	70.0	7.3	5.7	19.6	5.0	23.9	9	8	7	8	9	10	11	12	13	14	15	16	17	18
Shandong	13.0	8.8	127.2	85.9	6.2	75.1	12.9	7.5	11.1	5.0	68.3	11.1	7.5	8.0	9.3	13.4	5.3	29.0	30.1	99.2	100.0	75.0	35.0	41.0	37.5
Qingdao	11.7	8.1	133.0	100.0	14.6	78.9	8.0	9.3	13.4	5.3	30.1	13.4	9.3	8.0	11.1	32.4	5.5	33.2	32.1	75.0	35.0	41.0	37.5		
Tai'an	13.0	9.0	161.0	93.2	4.8	81.1	6.4	8.1	11.1	5.5	33.2	32.4	11.1	6.4	8.1	18	5.7	22.8	32.2	41.0	37.5				
Qufu	12.6	8.9	142.9	62.5	0.4	66.1	8.4	8.1	11.1	5.5	33.2	32.4	11.1	6.4	8.1	18	5.7	22.8	32.2	41.0	37.5				
Guizhou	10.0	7.5	164.5	89.3	7.8	89.3	4.7	6.1	18	5.7	22.8	18	6.1	4.7	6.1	0.7	8.5	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Guiyang	10.1	7.6	221.7	93.0	11.4	50.4	4.8	9.5	9.5	8.5	32.2	0.7	9.5	4.8	9.5	32.2	8.5	32.2	41.0	37.5					
Anshun	9.6	7.7	88.0	81.9	7.3	2.9	2.0	3.2	3.2	2.0	2.0	2.9	3.2	2.0	3.2	2.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

Explanation

- (a) Population and Revenue
 4: Per capita tax revenue (UMCT & PUS) of nonagricultural populations
 5: Per capita revenue for urban construction of nonagricultural populations

(b) Level of Provision Per Capita of Nonagricultural Populations

- 1: Housing-usable floor area per capita (m²)
 2: Housing-living floor area per capita (m²)
 3: Tap Water-household consumption per day per capita (liters)
 4: Tap Water-percentage of population with access
 5: Buses per 10,000 persons
 6: Gas-percentage of population with access
 7: Area of paved road per capita (m²)
 8: Density of sewers (km/km²)
 9: Percentage of wastewater treated
 10: Public green area per capita(m²)
 11: Green area as percent of built-up area
 12: Percentage of garbage and night soil treated

Source: MINISTRY OF CONSTRUCTION, ANNUAL URBAN CONSTRUCTION STATISTICAL REPORT (1996)

TABLE 4: PERCENTAGE SHARE* OF FINANCING OF LOCAL EXPENDITURES BY TYPE OF REVENUE FOR 37 CITIES IN DEVELOPING COUNTRIES

	Before and Including 1978**	After 1979**
<u>Locally Raised Revenue</u>	78.5	70.1
Local Taxes	46.2	38.8
Self-Financing Services	13.4	17.6
Other	7.9	7.8
<u>Revenue from External Sources</u>	21.5	29.1
Grants and Shared Taxes	11.2	22.0
Net Borrowing	8.7	7.0

Notes:

- * The percentages refer to median values in each type of revenue
- ** The lists of cities are different in the two periods, but there is an overlap of 12 cities in the two periods

Source: BAHL & LINN, *supra* note 74.

TABLE 5. URBAN CONSTRUCTION: SOURCES OF REVENUE (%)

1991	Total Funds (mill. Yuan)	Taxes	Other Bud. Funds	Central Grants	Local Grants	Water Charges	Domestic Loans	Foreign Loans	Parks User Charges	Others
ALL CITIES IN CHINA	26612.0	36.3	2.6	1.2	10.4	1.3	8.6	4.0	11.3	24.3
Qingdao	240.9	54.6	0.6	0.1	2.8	0.0	5.4	0.0	21.6	14.9
Taiian	69.0	12.9	0.0	0.0	0.9	0.7	43.0	22.2	2.5	17.9
Qufu	7.1	14.1	4.2	11.3	56.5	0.0	0.0	0.0	7.6	9.9
Guiyang	123.7	77.3	6.1	0.0	0.6	0.5	0.0	0.0	5.7	9.9
Anshun	6.7	66.2	0.0	0.0	22.2	0.0	0.0	0.0	8.2	3.3
MEAN OF FIVE CITIES	101.9	49.0	1.8	0.0	2.0	0.3	14.2	6.0	12.4	14.4
1993	Total Funds (mill. Yuan)	Taxes	Other Bud. Funds	Central Grants	Local Grants	Water Charges	Domestic Loans	Foreign Loans	Parks User Charges	Others
ALL CITIES IN CHINA	58119.0	22.5	3.9	0.7	10.2	0.8	7.7	2.4	7.9	43.8
Qingdao	614.1	27.5	0.2	0.0	4.7	0.0	27.9	0.0	15.2	24.3
Taiian	47.1	25.8	1.3	4.2	4.7	2.0	10.6	0.0	7.3	45.3
Qufu	13.1	20.8	1.5	0.0	33.3	1.9	0.0	0.0	5.0	37.6
Guiyang	175.0	45.5	0.0	0.0	0.0	0.7	0.0	0.0	8.2	45.7
Anshun	6.1	75.6	0.0	0.0	1.6	0.0	0.0	0.0	15.7	7.0
MEAN OF FIVE CITIES	171.1	31.4	0.3	0.3	4.2	0.3	20.6	0.0	13.2	29.9
1995	Total Funds (mill. Yuan)	Taxes	Other Bud. Funds	Central Grants	Local Grants	Water Charges	Domestic Loans	Foreign Loans	Parks User Charges	Others
ALL CITIES IN CHINA	77437.3	24.0	2.4	0.3	9.4	0.7	6.2	3.3	9.0	44.8
Qingdao	781.8	24.9	0.0	0.0	13.4	0.0	9.8	1.0	13.5	37.3
Taiian	58.0	26.2	0.9	0.5	1.3	0.8	36.2	0.0	6.6	27.6
Qufu	17.7	24.8	0.0	14.1	38.1	2.2	0.0	0.0	9.2	11.5
Guiyang	392.9	36.4	0.0	0.0	0.0	0.2	0.5	0.0	5.8	57.1
Anshun	9.9	72.1	0.0	0.0	24.1	0.0	0.0	0.0	2.6	1.2
MEAN OF FIVE CITIES	252.0	36.9	0.2	2.9	15.4	0.6	9.3	0.2	7.5	26.9

Source: Ministry of Construction, Annual Urban Construction Statistical Report 1992, 1994, 1996