

China

# Urban Land Management: Options for an Emerging Market Economy

(In Two Volumes) Volume II: Annexes

October 1, 1992

Environment, Human Resources and Urban Development Operations Division

China and Mongolia Department

East Asia and Pacific Regional Office

**FOR OFFICIAL USE ONLY**



**Document of the World Bank**

---

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization. Report No. 10049-EGT

## CURRENCY EQUIVALENTS

Currency = Renminbi; Currency Unit = Yuan = 100 fen

\$1.00 = Y 5.46

Y 1.00 = \$0.19

## FISCAL YEAR

January 1 - December 31

## WEIGHTS AND MEASURES

Metric System

## ACRONYMS AND ABBREVIATIONS

CABR	-	China Academy of Building Research
CASS	-	Chinese Academy of Social Sciences
CSCEC	-	China State Construction Engineering Company
CSHREDC	-	China State Housing and Real Estate Development Company
CAUPD	-	China Academy of Urban Planning and Design
CBD	-	Central Business District
CBTDC	-	China Building Technology Development Center
DPA	-	Development Permission Area
DSL	-	Da-She Lan District, Beijing
FAR	-	Floor Area Ratio
GDP	-	Gross Domestic Product
GIS	-	Geographic Information System
KLDC	-	Korea Land Development Corporation
LAB	-	Land Administration Bureau
LDC	-	Land Development Corporation, Hong Kong
LIS	-	Land Information System
MoA	-	Ministry of Agriculture
MoC	-	Ministry of Construction
MOF	-	Ministry of Finance
NBSM	-	National Bureau of Surveying and Mapping
NEPA	-	National Environmental Protection Agency
O&M	-	Operations and Maintenance
PC	-	Portable Computer
PCBC	-	People's Construction Bank of China
REAB	-	Real Estate Administration Bureau
REDC	-	Real Estate Development Company
SHCLAB	-	Shanghai County Land Administration Bureau
SHMLAB	-	Shanghai Municipal Land Administration Bureau
SIS	-	Strategic Information Systems
SLA	-	State Land Administration
SMG	-	Singapore Municipal Government
SPC	-	State Planning Commission
SREC	-	Shanghai Real Estate Company
SUCF	-	Shanghai Urban Construction Fund
TMG	-	Tianjin Municipal Government
TREDC	-	Tianjin Real Estate Development Company
TVE	-	Township and Village Enterprise
TVIE	-	Township and Village Industrial Enterprise
URA	-	Urban Redevelopment Authority, Singapore
ZGC	-	Zhong-Guan-Chun District, Beijing

CHINAURBAN LAND MANAGEMENT: OPTIONS FOR AN EMERGING MARKET ECONOMYVOLUME II: ANNEXESTable of Contents

	<u>Page No.</u>
<b>ANNEX 1. <u>SUPPORTING GRAPHICS</u> . . . . .</b>	<b>1</b>
1.1 Urban Population Distribution, Cumulative Profiles . . .	1
1.2 Land Use Profile in Seoul in 1988 . . . . .	2
1.3 Warsaw - Impact of Land Use Regulations on Land Supply .	3
2.1 Sample of Residential Land Prices in Seoul in 1989, Average by Distance from Center . . . . .	4
2.2 Comparative Density Profile: Shanghai, Paris, and Seoul	5
2.3 Comparative Density Gradient in the Built-up Area of 4 Chinese Cities, Paris and Moscow . . . . .	6
2.4 Paris - Land Use, Population Density (1990) . . . . .	7
2.5 St. Petersburg - Land Use Analysis, Gross Population Density Within the Built-up Area of 86 Districts . . . . .	8
2.6 Moscow - Land Use Analysis, Gross Population Density Within the Built-up Area of Municipality . . . . .	9
2.7 St. Petersburg - Land Use Analysis, Land Use in Concentric Rings from City Center . . . . .	10
2.8 Moscow - Land Use Analysis, Land Use in Concentric Rings . . . . .	11
4.1 Guangzhou Municipality: Land Use Analysis . . . . .	12
4.2 Guangzhou Master Plan . . . . .	13
4.3 Shanghai - Population Changes Between 1982 and 1990 . . .	14
4.4 Guangzhou - Density Profile in 4 Central Districts . . .	15
5.1 Shanghai: Master Plan (Year 2000) Versus Actual Plan Development (1990) . . . . .	16
5.2 Shanghai: Population Densities--1982 and 1990 . . . . .	17
5.3 Shanghai: Population Densities, Trends, Compared with Paris . . . . .	18
5.4 Shanghai: Population Density Distribution . . . . .	19
5.5 Shanghai: Growth in Built-Up Area . . . . .	20
5.6 Shanghai: Land Uses, 1982 and 1990 . . . . .	21
5.7 Share of Population, Jobs and Housing Between Puxi and Pudong . . . . .	22
5.8 Shanghai: Land Uses: Existing and Expected Under Revised Master Plan . . . . .	23
5.9 Distribution of Shanghai's Industrial Land in 1982 . . .	24

**ANNEX 2. RESIDENTIAL REDEVELOPMENT PROJECT SURVEYS: ISSUES RAISED BY REAL ESTATE DEVELOPERS . . . . . 25**

A. Fuzhou: An Deng Project . . . . . 25

B. Guangzhou: Jin Hua Project . . . . . 27

C. Hangzhou: Xiao Fuqing Lane Redevelopment Project . . . . . 30

D. Shanghai: Hu Lang Garden Project . . . . . 31

E. Shanghai: Hui Yi Garden Project . . . . . 35

F. Shanghai: Jian Guo Redevelopment Project . . . . . 35

G. Shanghai: Ordinary Citizen Project . . . . . 37

H. Shanghai: Tian He Project . . . . . 40

I. Shanghai: Ying Xiang Villas Project . . . . . 40

J. Tianjin: Pingshan Road Redevelopment Project . . . . . 43

K. Tianjin: Wujaiyao Project . . . . . 45

L. Baseline Simulation Case . . . . . 47

Table 1: Fuzhou: An Deng Project . . . . . 26

Table 2: Guangzhou: Jin Hua Redevelopment Project . . . . . 29

Table 3: Hangzhou: Xiao Fuqing Lane Redevelopment Project . . . . . 32

Table 4: Shanghai: Hu Lang Garden Redevelopment Project . . . . . 34

Table 5: Shanghai: Hui Yi Garden Redevelopment Project . . . . . 36

Table 6: Shanghai: Jian Guo Redevelopment Project . . . . . 38

Table 7: Shanghai: Ordinary Citizen Redevelopment Project . . . . . 41

Table 8: Shanghai: Tian He Redevelopment Project . . . . . 42

Table 9: Shanghai: Ying Xiang Redevelopment Project . . . . . 44

Table 10: Tianjin: Pingshan Road Redevelopment Project . . . . . 46

Table 11: Tianjin: Wujaiyao Project . . . . . 48

Table 12: Baseline Assumptions for Simulations . . . . . 49

**ANNEX 3. RESIDENTIAL RELOCATION POLICIES IN SELECTED CITIES . . . . . 51**

A. Tianjin's Relocation Policies . . . . . 51

B. Relocation in Guangzhou's Jin Hua Project . . . . . 52

C. Relocation Policy in Shanghai . . . . . 54

D. Cash Versus In-Kind Compensation for Demolished Housing . . . . . 56

E. Fuzhou's Compensation Approach . . . . . 59

F. On-Site and Off-Site Replacement of Demolished Housing . . . . . 61

Box 1: Tianjin Urban Development Project: Innovative Resettlement Schemes . . . . . 53

Box 2: Shanghai: Relocation Policies for Public Works Projects . . . . . 54

Table 1: Fuzhou and Tianjin Redevelopment Compensation Schedules . . . . . 56

Table 2: Comparison of the Economic Value of Old Dwelling Units and New In-Kind Replacement Units . . . . . 58

Table 3: Total Redevelopment and Resettlement Costs . . . . . 59

Table 4: Previous and New On-Site Replacement Housing in Seven Redevelopment Projects with Over 85 Percent On-Site Resettlement . . . . .	62
Table 5: Breakdown of Net New Constructed Space in Development Projects . . . . .	63
Table 6: Shanghai's Differential Rent Surcharges . . . . .	64
Table 7: Shanghai Standards for the Replacement of Demolished Housing . . . . .	65

**ANNEX 4. INSTITUTIONAL STRUCTURE OF LAND ADMINISTRATION . . . . . 67**

A. Introduction . . . . .	67
B. State-Level Organizations . . . . .	67
State Planning Commission . . . . .	67
State Land Administration . . . . .	67
Ministry of Construction . . . . .	68
Ministry of Agriculture . . . . .	69
C. Local-Level Institutions . . . . .	69
Land Administration Bureau . . . . .	70
City Planning Bureau . . . . .	70
Real Estate Administration Bureau . . . . .	70
D. Shanghai Land Administration Institutions: A Case Study	71
District and County Land Management Organizations .	75
Land Disposition Process in Shanghai . . . . .	76

Figure 1: Organization of Authorities Related to Land Administration . . . . .	68
Figure 2: Government Structure and Land Management Institutions in Shanghai Municipality . . . . .	73
Figure 3: Organization Chart of Shanghai Municipal Land Administration Bureau (SHMLAB) . . . . .	74
Figure 4: Changing Planning and Land Administration Bureau . . . . .	76
Figure 5: Land Ownership Types in Shanghai . . . . .	77
Figure 6: Simplified Land Use Application Procedures in Shanghai Municipality . . . . .	78
Figure 7: The Process of the Grant and Transfer of Land Use Rights for Valuable Consideration in Shanghai Municipality . . . . .	79

**ANNEX 5. PROCEDURES AND COSTS OF LAND REQUISITION . . . . . 81**

A. Nature of Land Requisition . . . . .	81
B. Approval Procedure of State Construction Projects . . . . .	82
C. Land Requisition . . . . .	82
D. Components and Cost of Land Requisition . . . . .	84
Government-Collected Taxes or Fees . . . . .	85
Land Compensation . . . . .	85
Property Compensation Fees . . . . .	85
Compensation of Displaced Laborers . . . . .	86

	<u>Page No.</u>
Box 1: Zhong Yuan Road Housing Phase I . . . . .	83
Table 1: Land Requisition Cost for Two Projects in Shanghai	84
<b>ANNEX 6. <u>PROCEDURES AND COSTS OF URBAN RESETTLEMENT</u></b> . . . . .	<b>87</b>
A. The Nature of Urban Resettlement in China . . . . .	87
B. Preconditions to Resettlement . . . . .	87
C. Procedures for Resettlement . . . . .	88
Obtaining a Demolition and Relocation Permit . . . . .	88
Public Dissemination of Information . . . . .	89
Resettlement Contract . . . . .	89
D. Contents of Compensation of Resettlement . . . . .	89
Compensation for Demolition . . . . .	89
Resettlement Arrangement . . . . .	91
E. Cost of Resettlement . . . . .	91
Table 1: Shanghai Standards for the Replacement of Demolished Housing . . . . .	92
Table 2: Hangzhou: Xiao Fuqing Xiang Redevelopment Project . . . . .	92
Table 3: Cost Breakdown of Xiao Fuqing Xiang Project . . . . .	93
<b>ANNEX 7. <u>REDEVELOPMENT REGULATIONS IN SELECTED ASIAN CITIES</u></b> . . . . .	<b>95</b>
A. Introduction . . . . .	95
B. Hong Kong . . . . .	96
Hong Kong Development Corporation . . . . .	97
C. Seoul . . . . .	100
D. Singapore . . . . .	103
Commercial and Industrial Relocation . . . . .	104
Industrial Uses . . . . .	105
Residential Uses . . . . .	105
Housing Development Board, Government of Singapore . . . . .	106
Second-Stage Redevelopment--Upgrading Old HDB Projects . . . . .	107
E. Resettlement Policy . . . . .	108
Table 1: Commercial Rent Schedules for Market, and Sub- sidized Tenants, 1960, 1970 and 1980 Locating in "Transit Facilities" . . . . .	104
Table 2: Singapore Redevelopment Relocation Activity . . . . .	106
<b>ANNEX 8. <u>ASSESSING THE FINANCIAL PERFORMANCE OF RESIDENTIAL REDEVELOPMENT PROJECTS</u></b> . . . . .	<b>111</b>
A. Introduction . . . . .	111
B. Floor Area Ratio and Redevelopment Cost and Financing . . . . .	113
C. Replacement Space Standards . . . . .	114
D. On-Site Versus Off-Site Housing Replacement . . . . .	116
E. Provision of Public Facilities . . . . .	120
F. Fees and Taxes . . . . .	121

Table 1: Break-Even Prices for Commodity Housing in Redevelopment Projects . . . . .	112
Table 2: Fees and Taxes Paid by Redevelopment Projects . . . . .	122
Figure 1: Relationship Between Increase in FAR and the Percent of New Construction That is Sold as Commodity Housing or Commercial Space . . . . .	113
Figure 2: Break-Even Sales Price by Floor Area Ratio for Prototypical Redevelopment Project . . . . .	114
Figure 3: Relationship Between Replacement Space Standards and the Portion of Net New Construction Sold on Commodity Market . . . . .	115
Figure 4: Relationship Between Replacement Space Standards and Break-Even Sales Price of Commodity Space for Various FARs . . . . .	116
Figure 5: Break-Even Prices by Percent of On-Site Resettlement, Assuming 25% Off-Site Bonus for Various Housing Replacement Policies . . . . .	118
Figure 6: Break-Even Prices by Percent of On-Site Resettlement, Assuming 50% Off-Site Bonus for Various Housing Replacement Policies . . . . .	119
Figure 7: Normalized Break-Even Prices by Percent of Total Constructed Area Devoted to Public Facilities . . . . .	121
<b>ANNEX 9. <u>STRATEGIC PLANNING IN HONG KONG AND SINGAPORE</u> . . . . .</b>	<b>123</b>
A. Hong Kong . . . . .	123
B. Singapore . . . . .	124
<b>ANNEX 10. <u>REGISTRATION OF PROPERTY INTERESTS</u> . . . . .</b>	<b>127</b>
<b>ANNEX 11. <u>CADASTRAL MAPPING</u> . . . . .</b>	<b>129</b>
A. Cadastral Mapping and Geographic Information . . . . .	129
B. Cadastral Mapping in Selected Urban Areas . . . . .	130
<b>ANNEX 12. <u>GEOGRAPHIC INFORMATION SYSTEMS (GIS)</u> . . . . .</b>	<b>133</b>
A. Hardware and Software . . . . .	133
B. Information Management . . . . .	134
Basic Information . . . . .	134
Physical Information . . . . .	135
Thematic Information . . . . .	135
C. Issues and Constraints . . . . .	135
D. GIS Development Strategy and Costs . . . . .	136

Figure 1.1: URBAN POPULATION DISTRIBUTION  
CUMULATIVE PROFILES

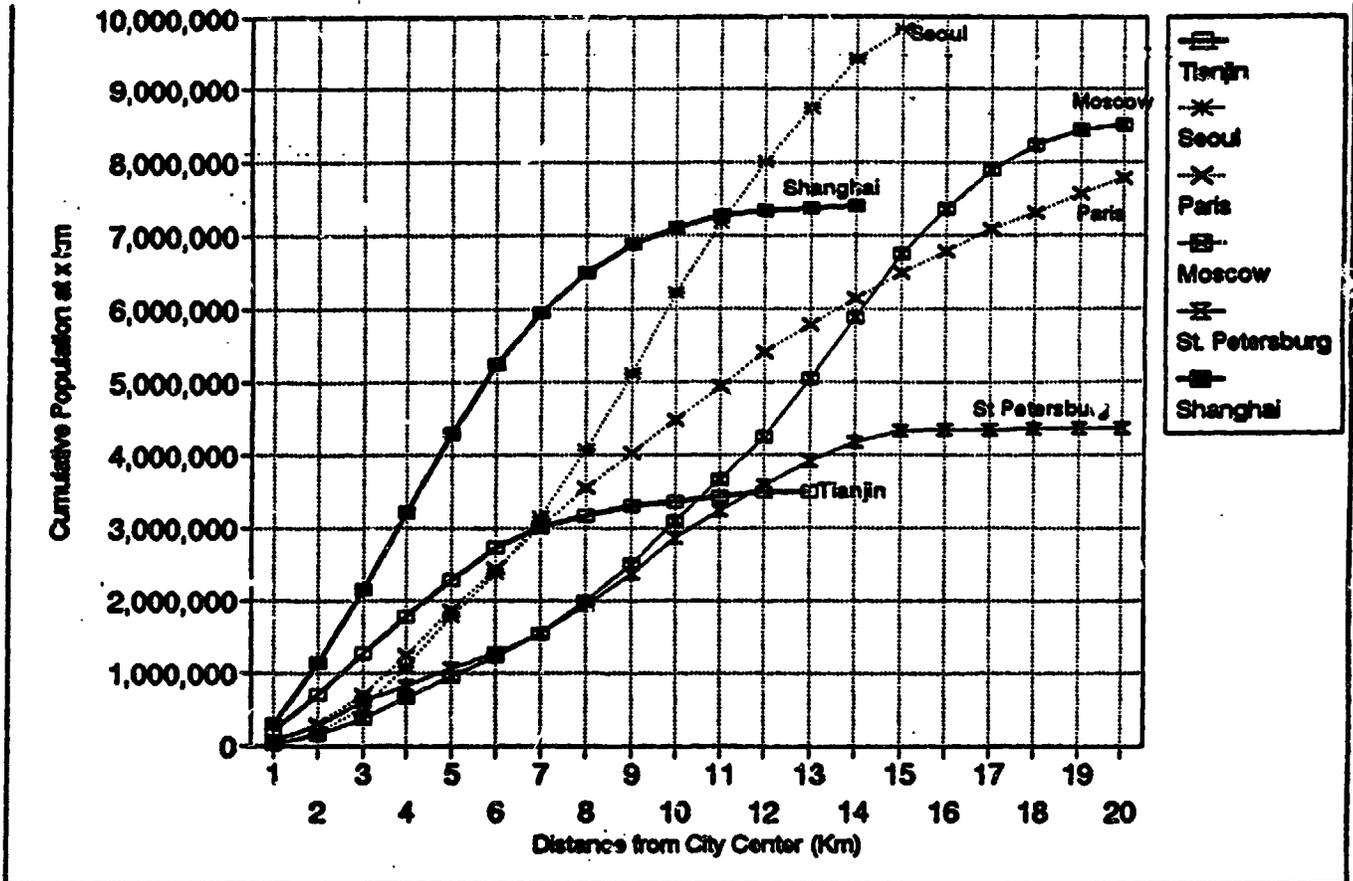
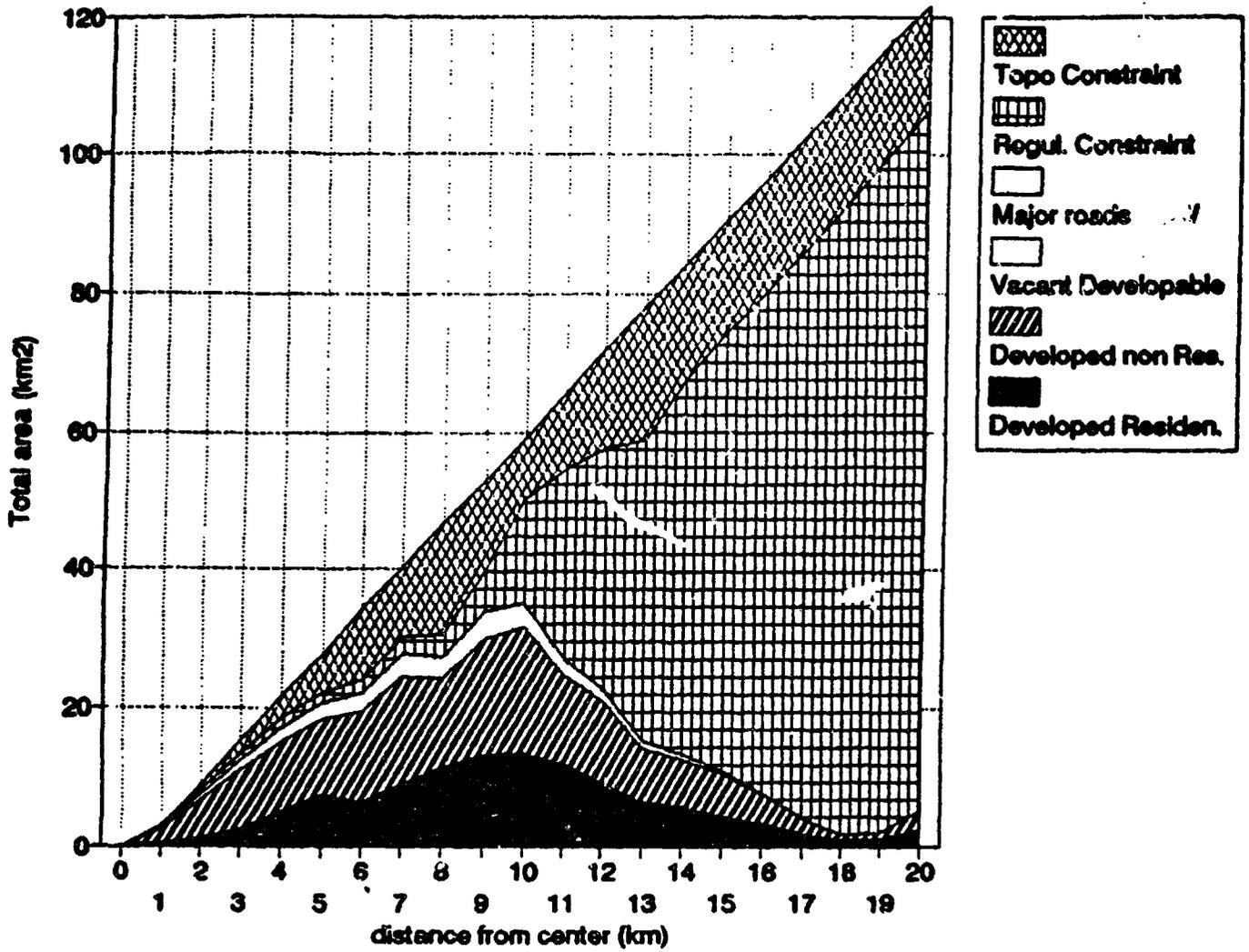
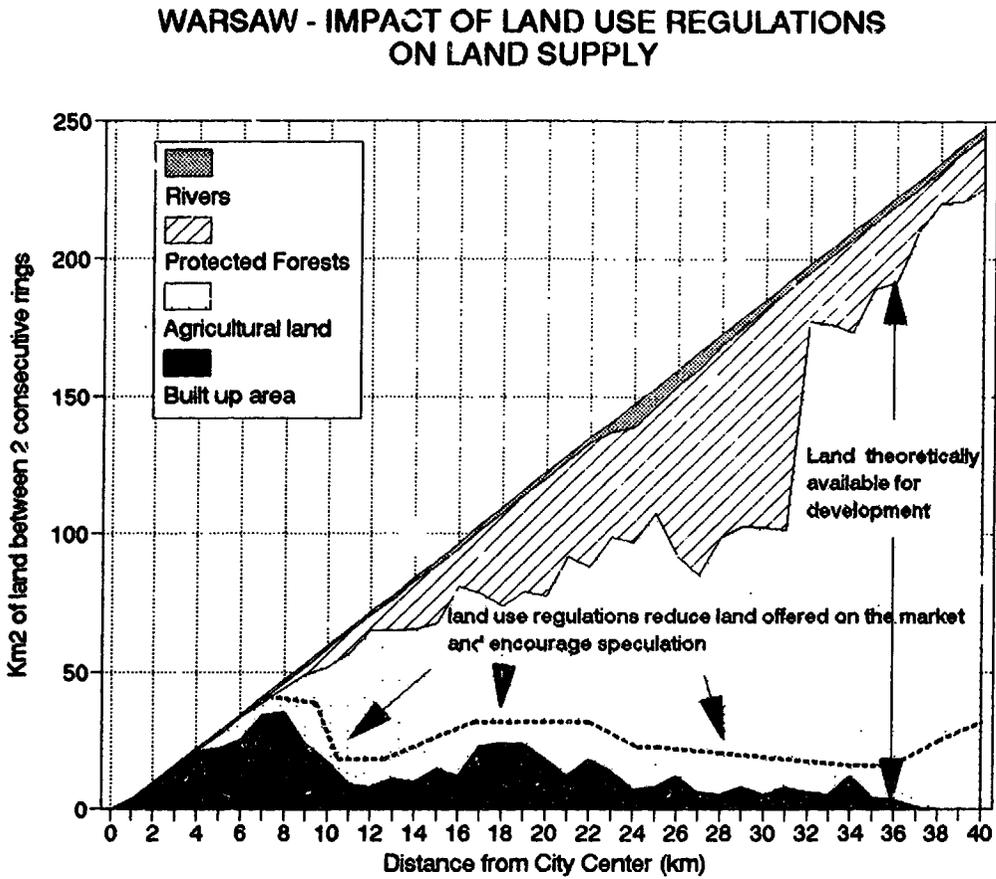


Figure 1.2: LAND USE PROFILE IN SEOUL IN 1988



ANNEX 1

Figure 1.3: WARSAW - IMPACT OF LAND USE REGULATIONS ON LAND SUPPLY



**Figure 2.1: SAMPLE OF RESIDENTIAL LAND PRICES IN SEOUL IN 1989  
AVERAGE BY DISTANCE FROM CENTER**

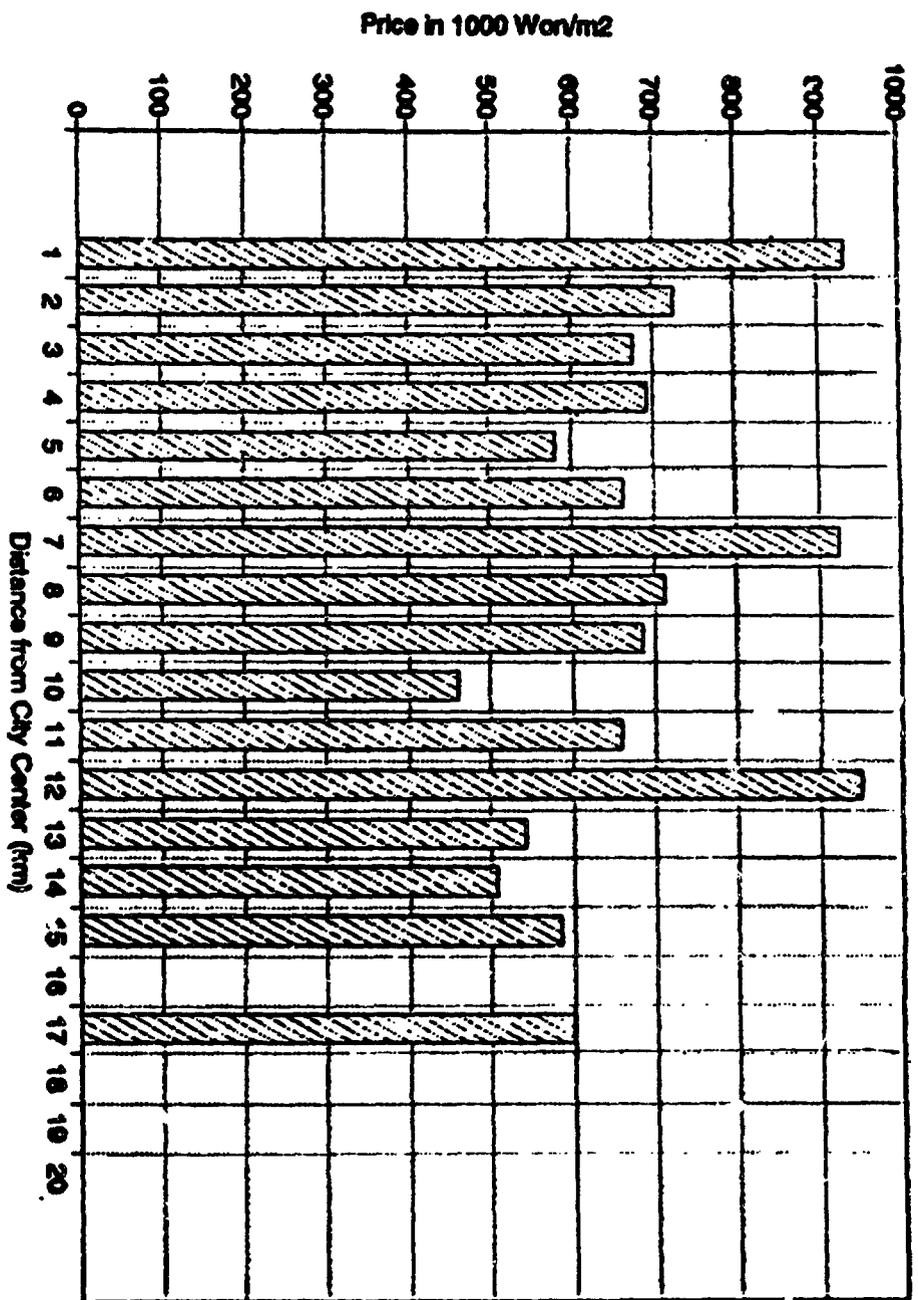


Figure 2.2: COMPARATIVE DENSITY PROFILE: SHANGHAI, PARIS AND SEOUL

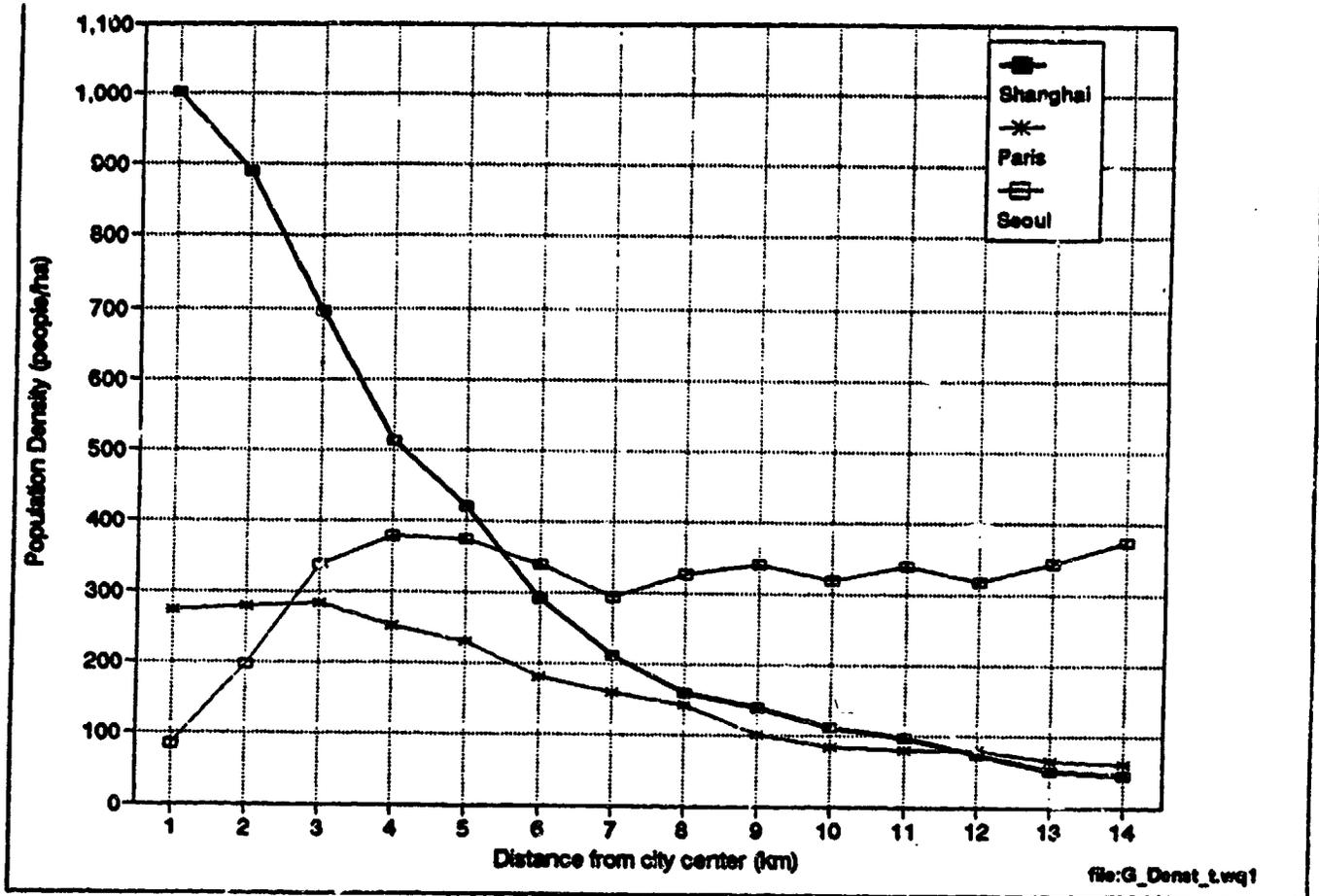


Figure 2.3: COMPARATIVE DENSITY GRADIENT IN THE BUILT-UP AREA OF 4 CHINESE CITIES, PARIS AND MOSCOW

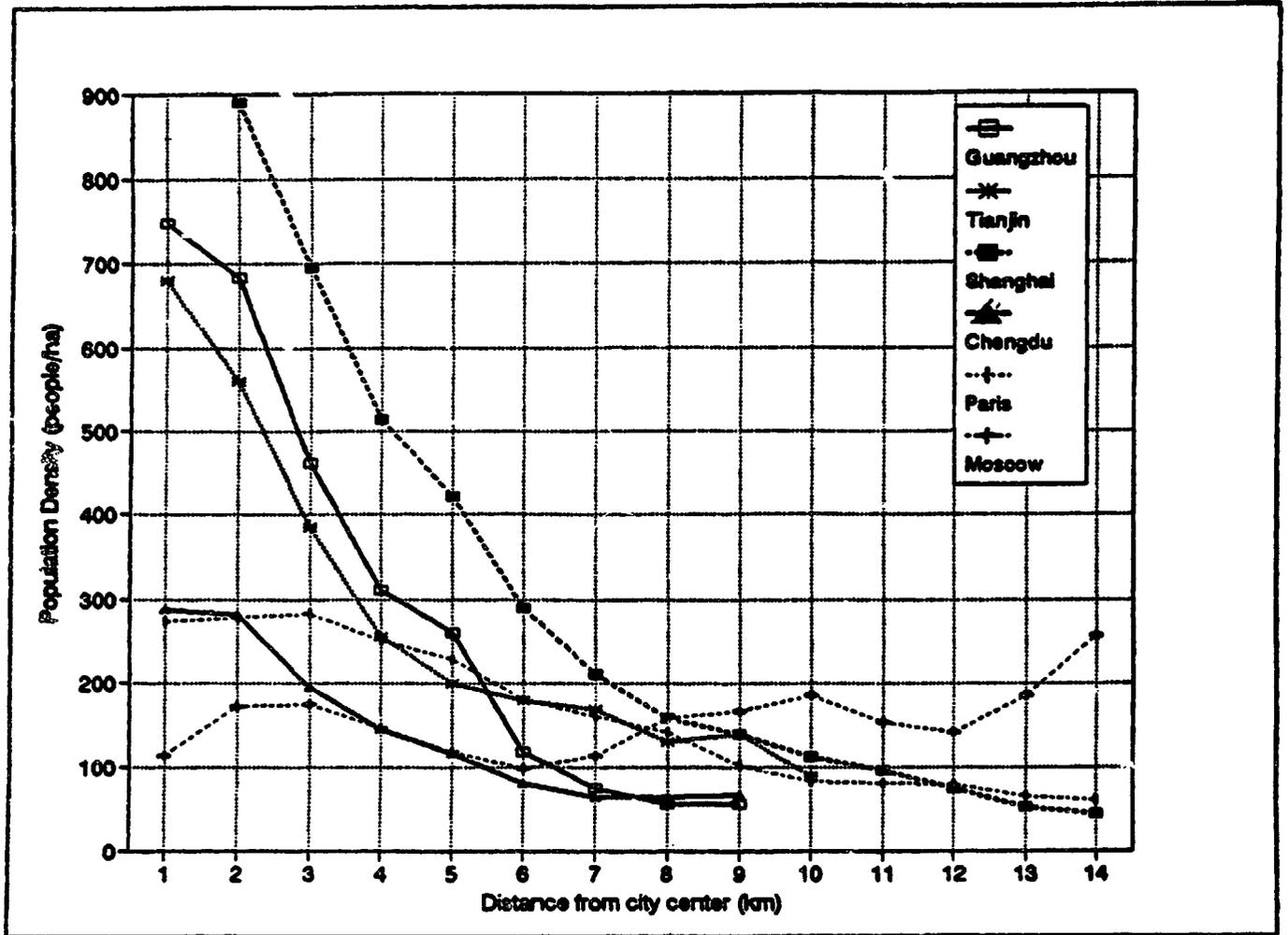
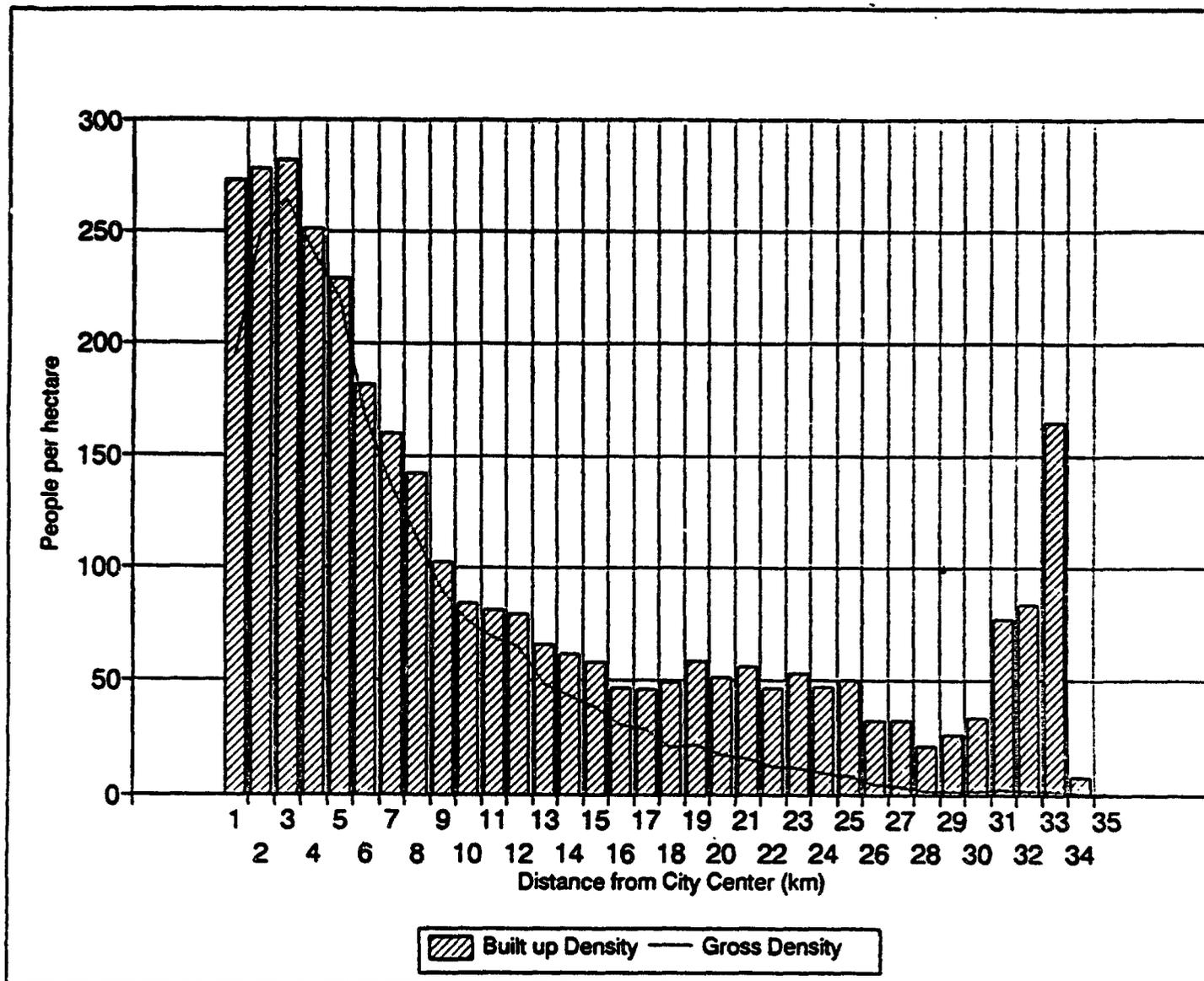
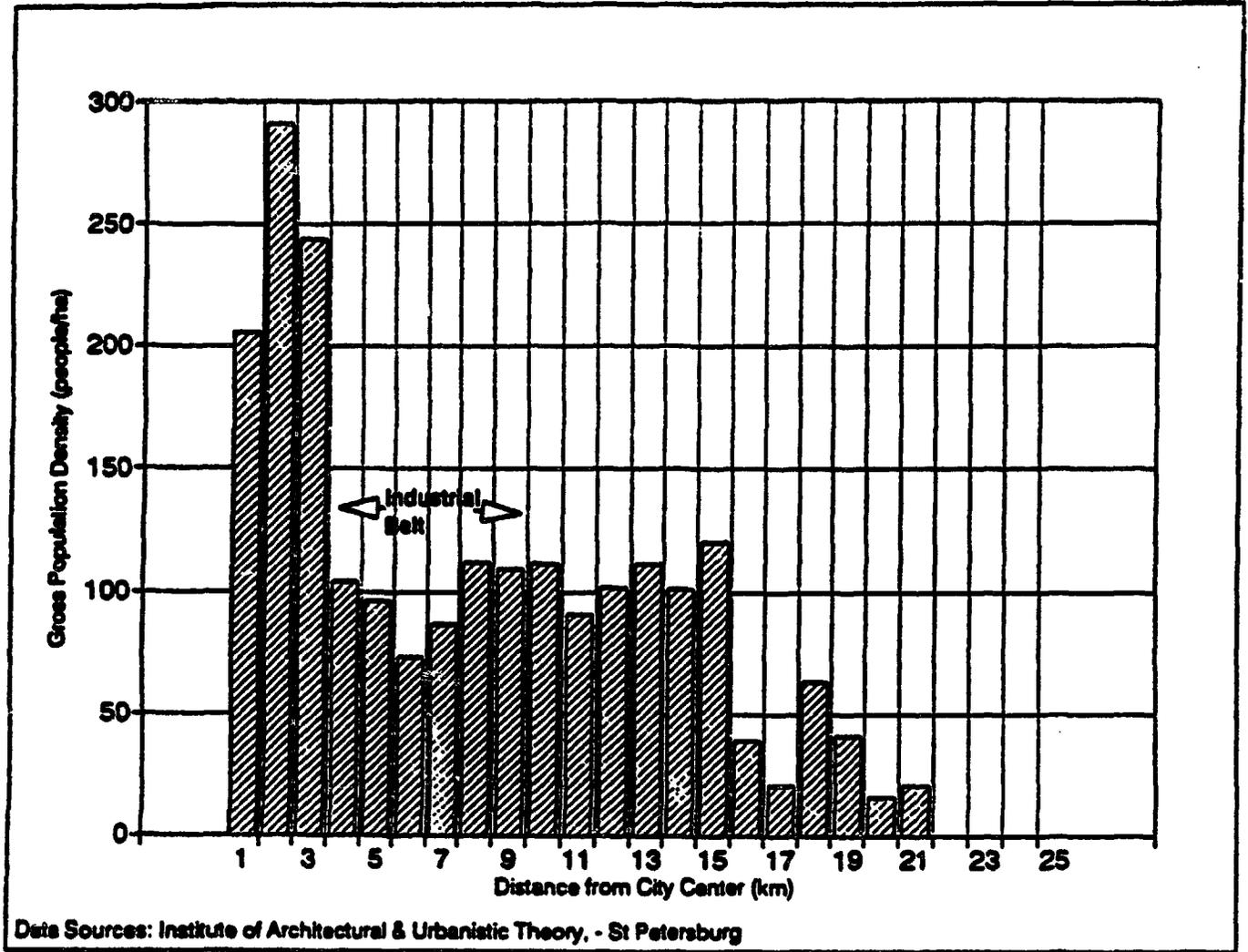


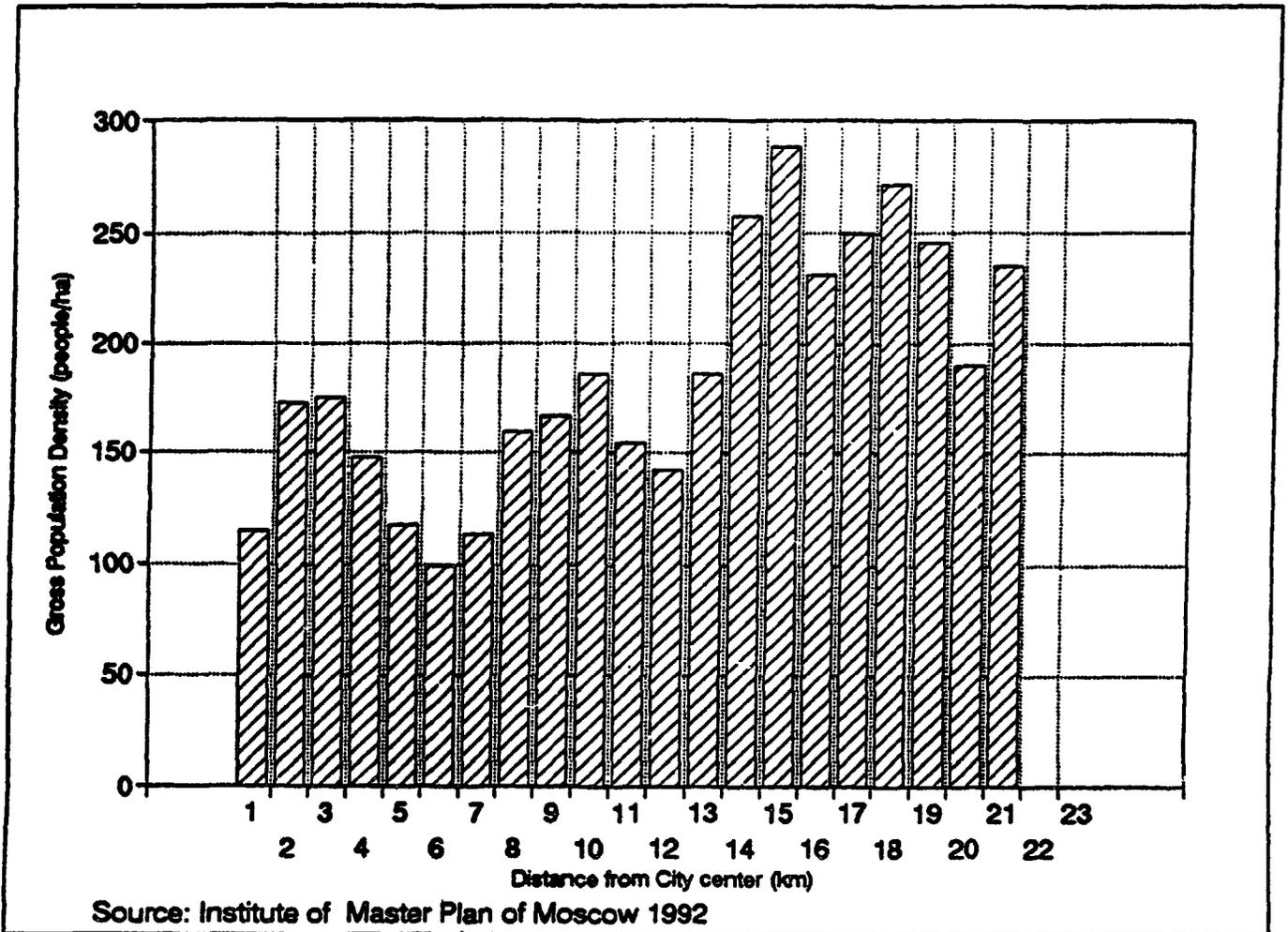
Figure 2.4: PARIS - LAND USE  
POPULATION DENSITY (1990)



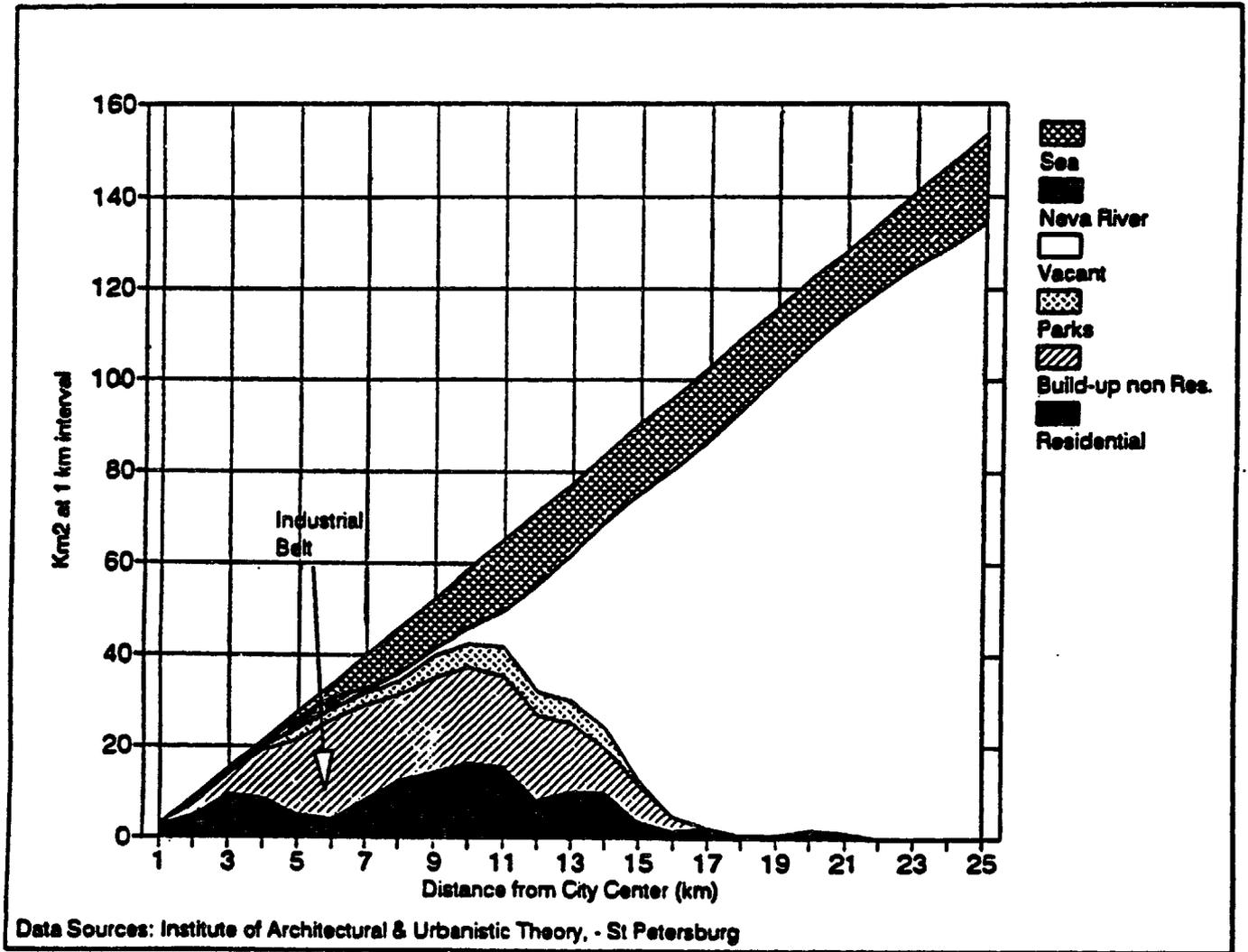
**Figure 2.5: ST. PETERSBURG - LAND USE ANALYSIS**  
**Gross Population Density Within the Built-up Area of 86 Districts**



**Figure 2.6: MOSCOW - LAND USE ANALYSIS**  
**Gross Population Density Within the Built-up Area of Municipality**



**Figure 2.7: ST. PETERSBURG - LAND USE ANALYSIS**  
**Land Use in Concentric Rings from City Center**



**Figure 2.8: MOSCOW - LAND USE ANALYSIS**  
Land Use in Concentric Rings

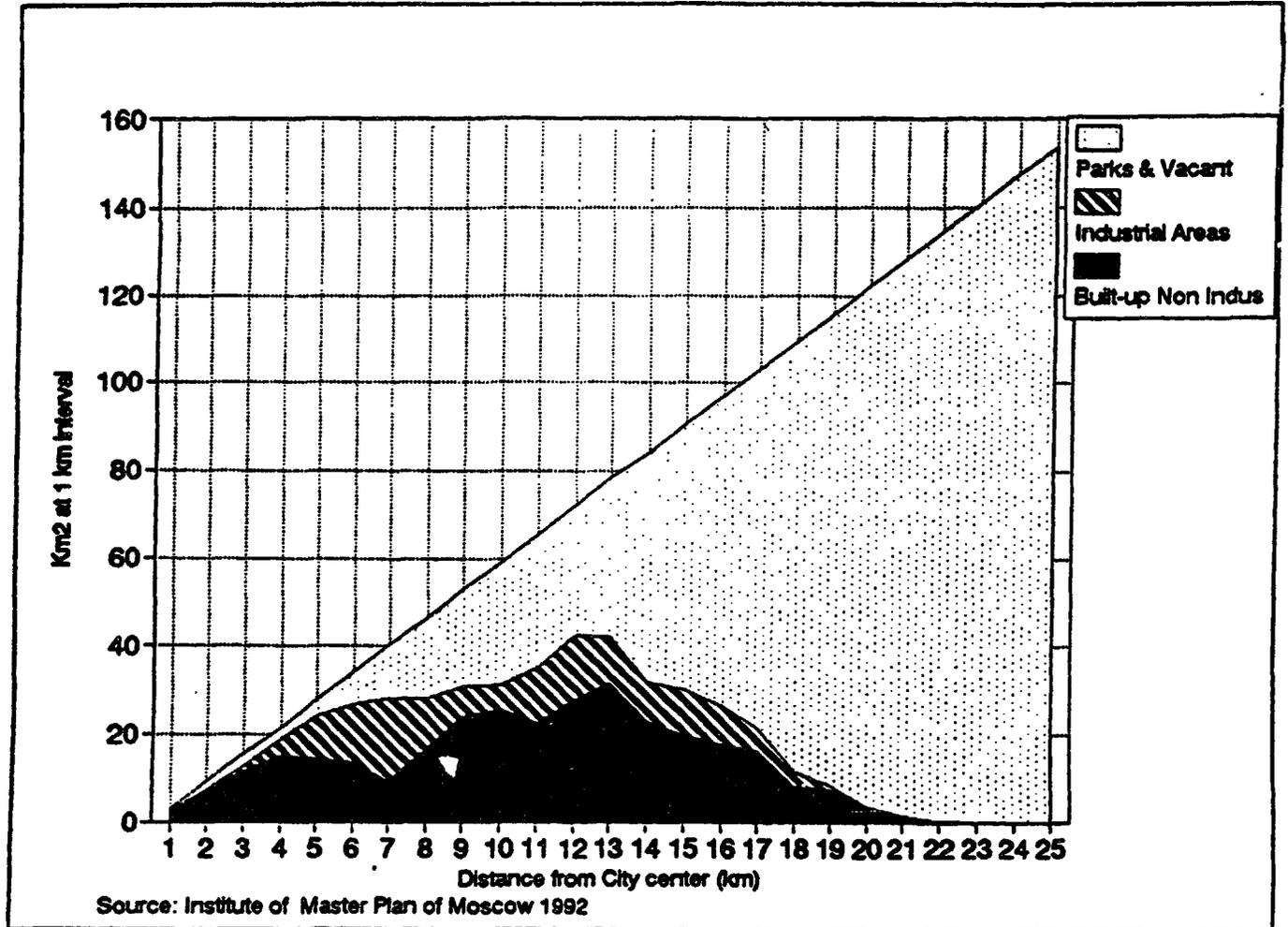
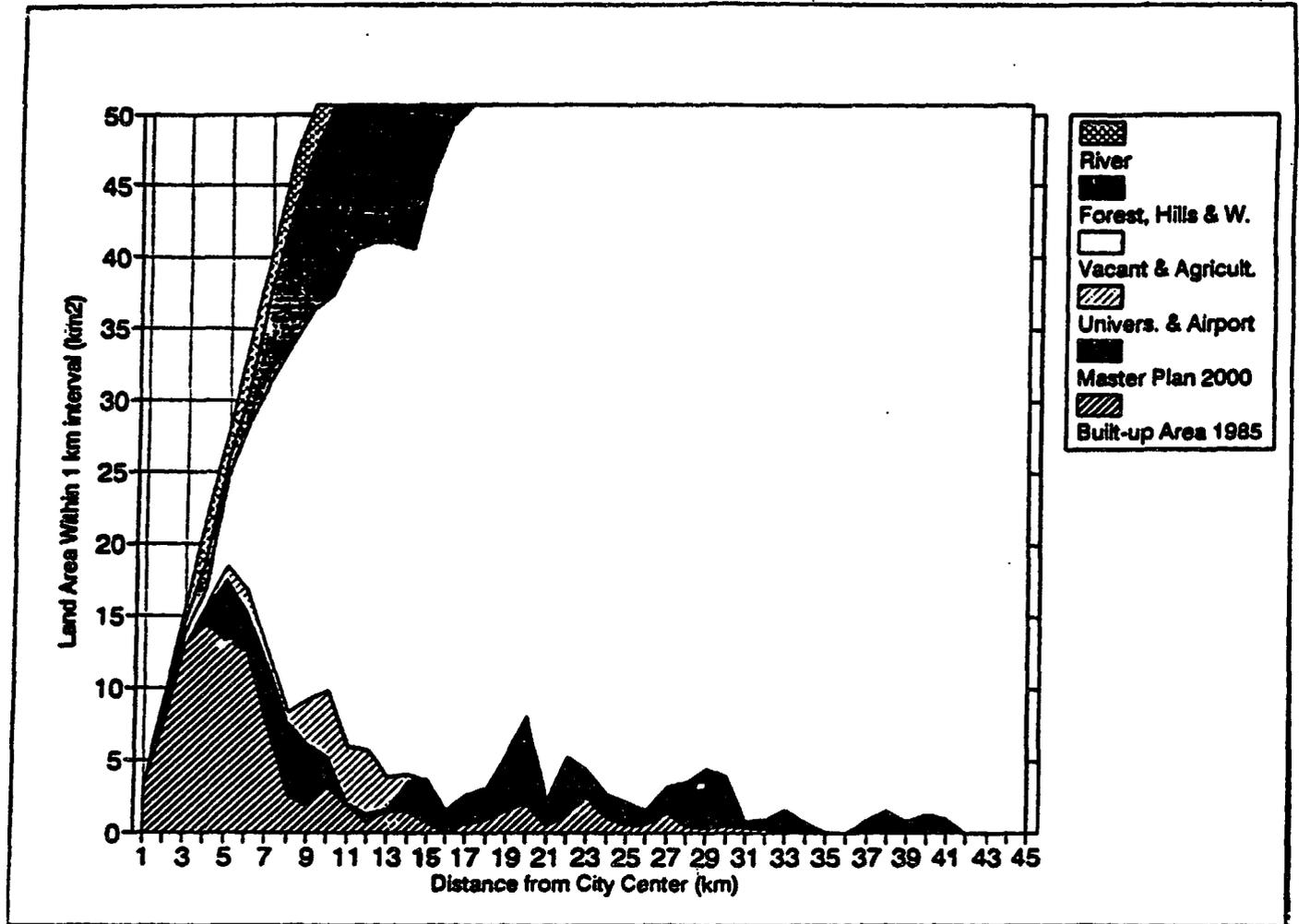


Figure 4.1: GUANGZHOU MUNICIPALITY: LAND USE ANALYSIS



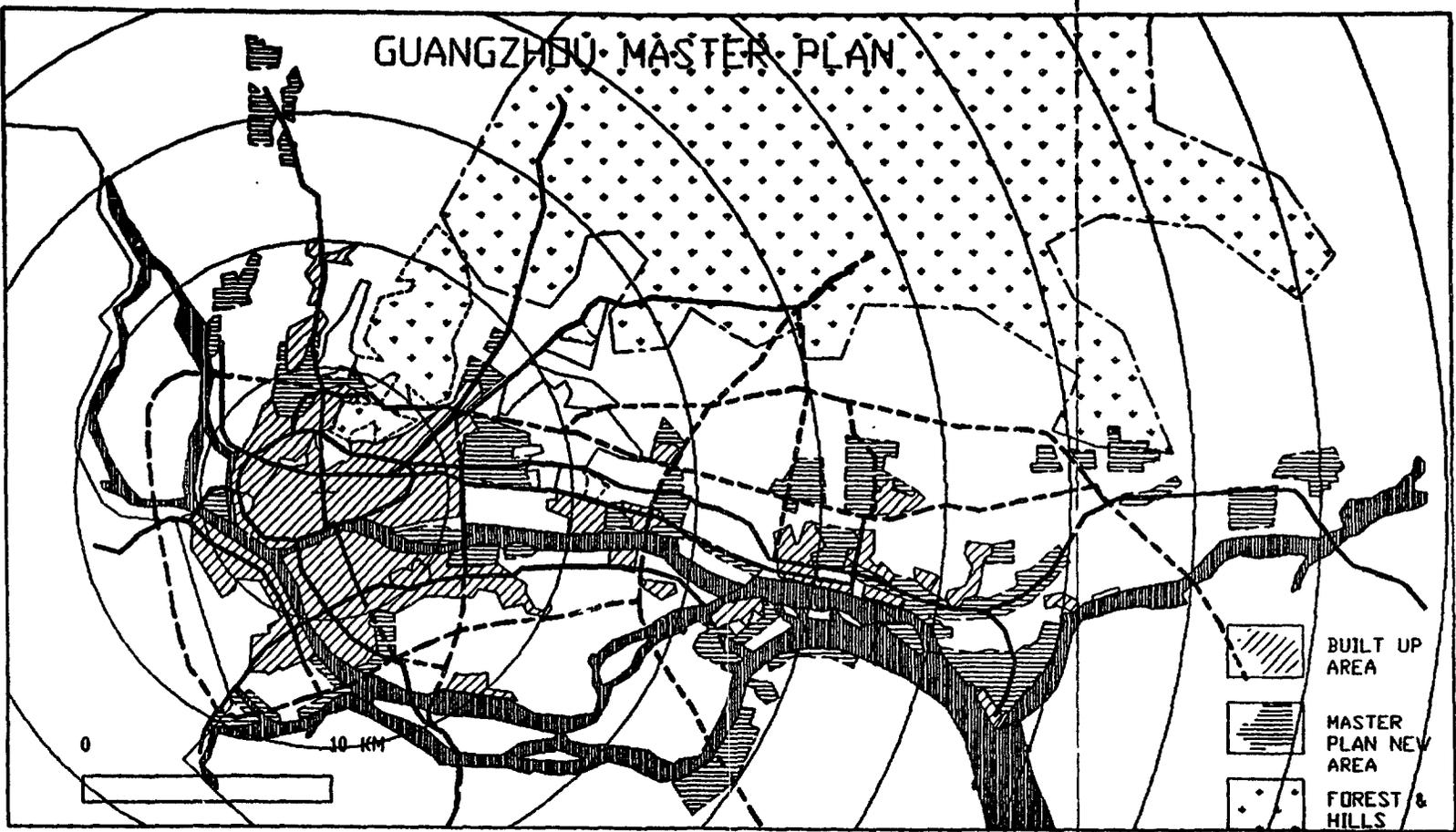


Figure 4.2: GUANGZHOU MASTER PLAN

Figure 4.3: SHANGHAI - POPULATION CHANGES BETWEEN 1982 AND 1990

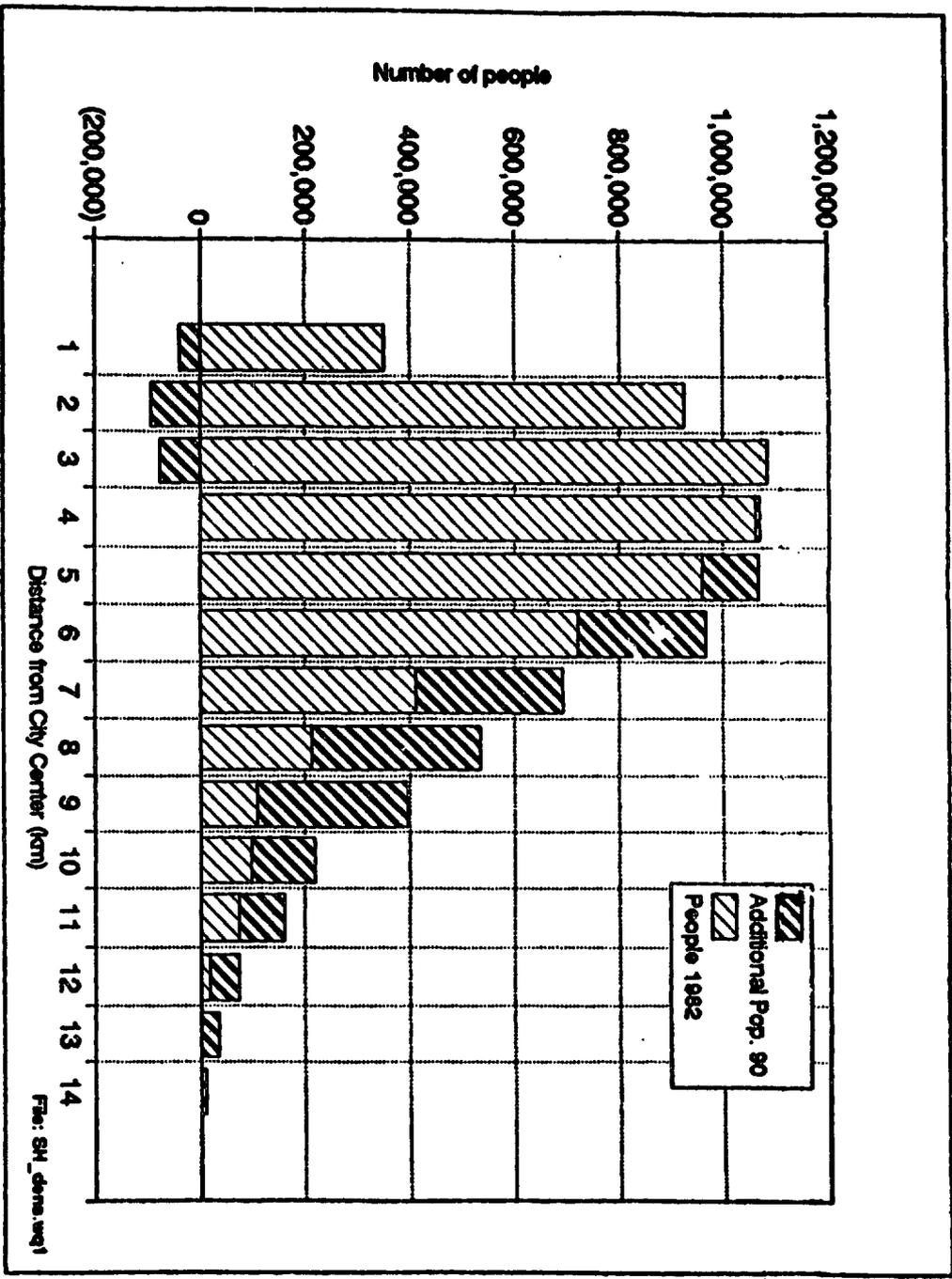


Figure 4.4: GUANGZHOU - DENSITY PROFILE IN 4 CENTRAL DISTRICTS

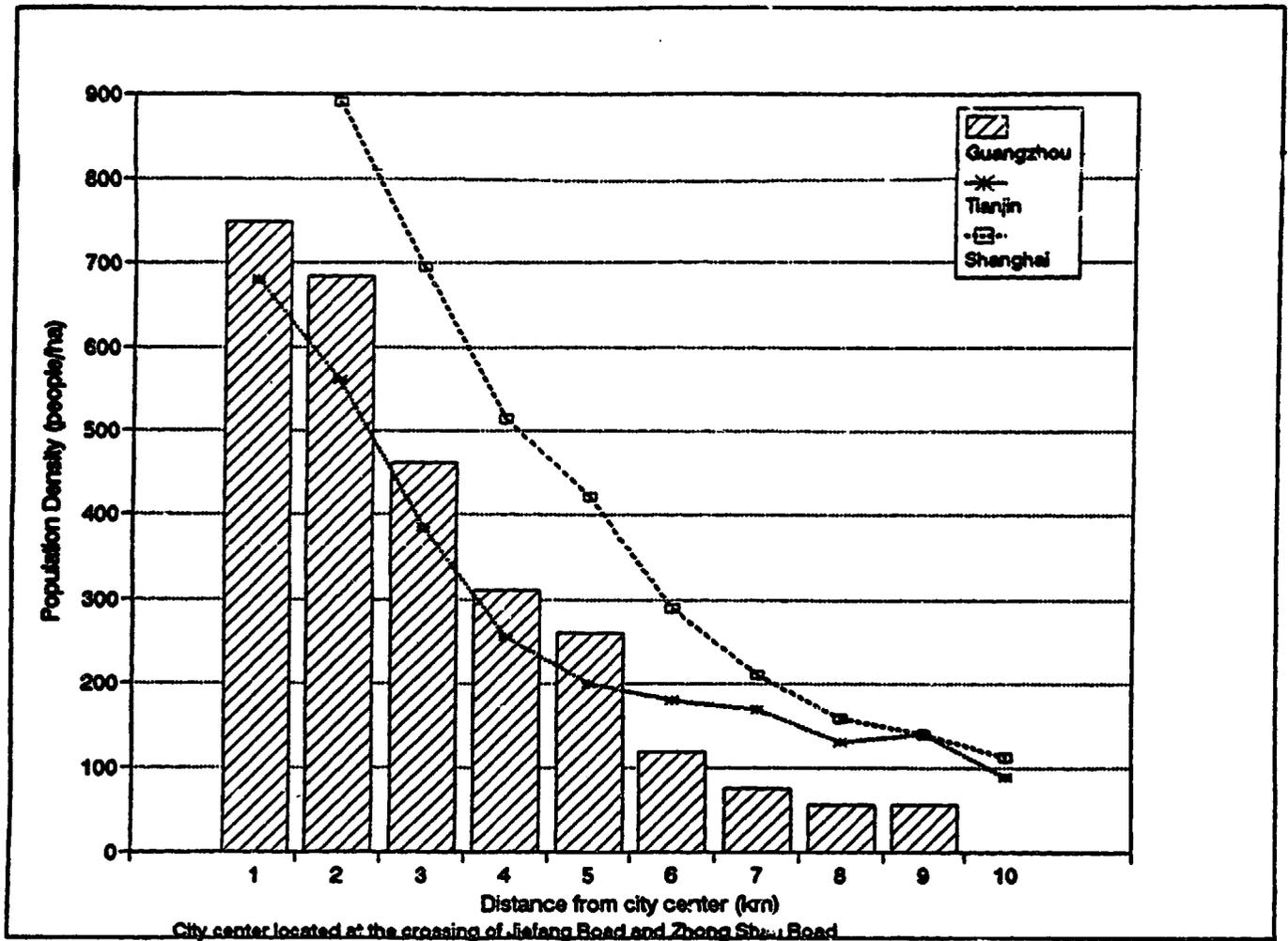


Figure 5.1: SHANGHAI: MASTER PLAN (YEAR 2000) VERSUS ACTUAL PLAN DEVELOPMENT (1990)

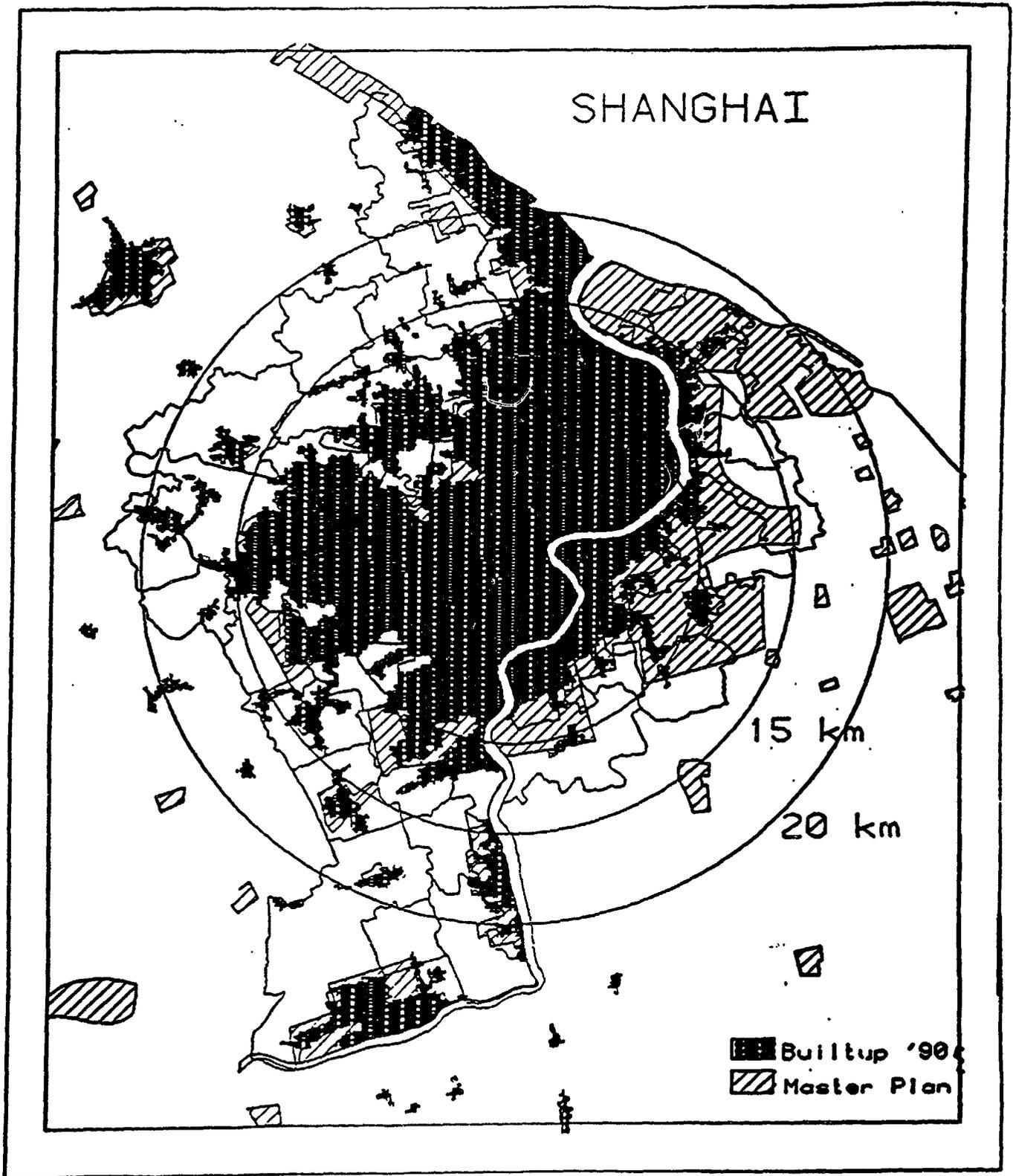
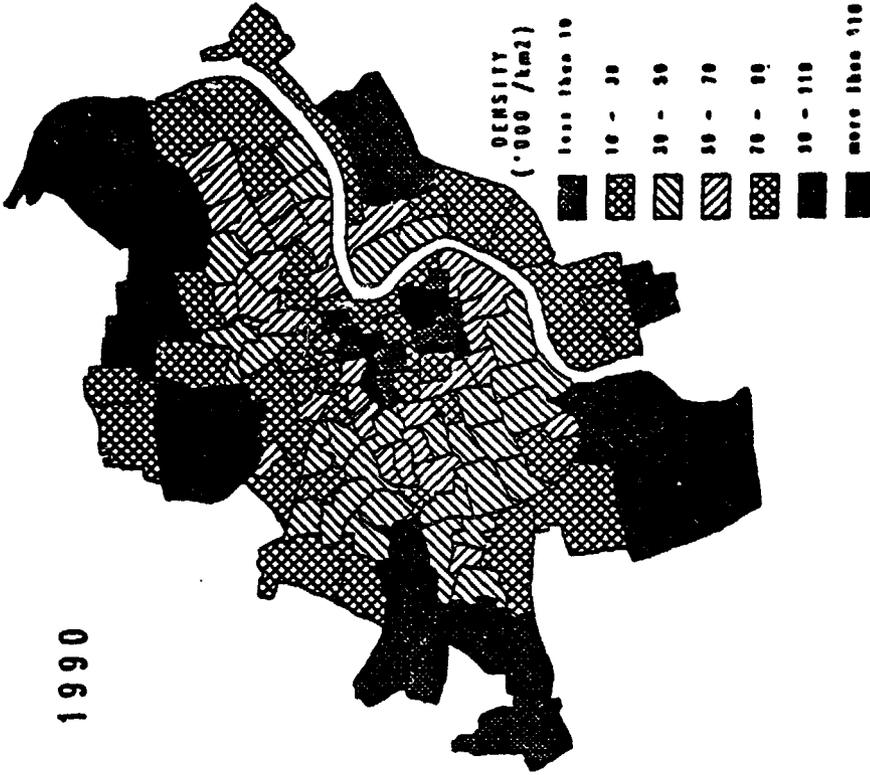


Figure 5.2: SHANGHAI: POPULATION DENSITIES 1982 AND 1990

1990



1982

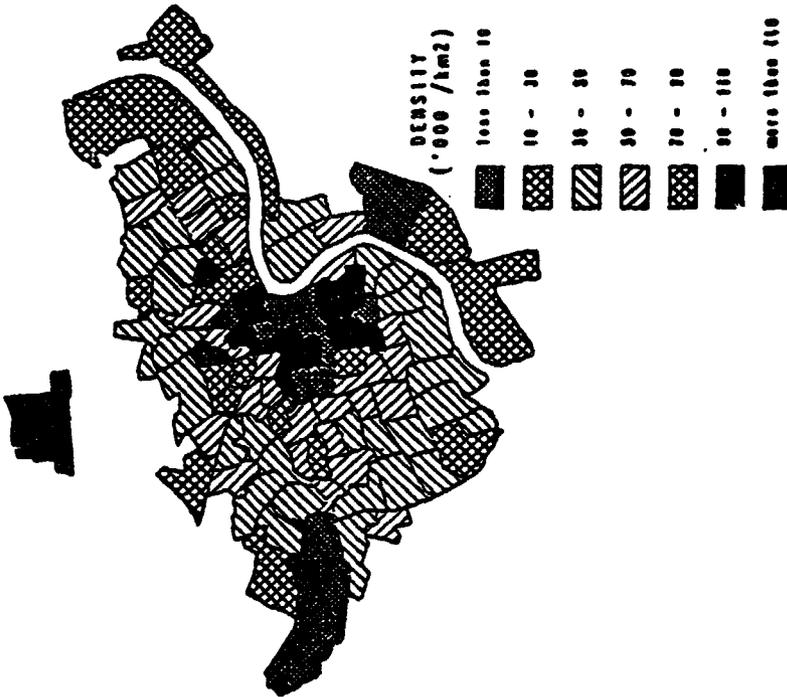
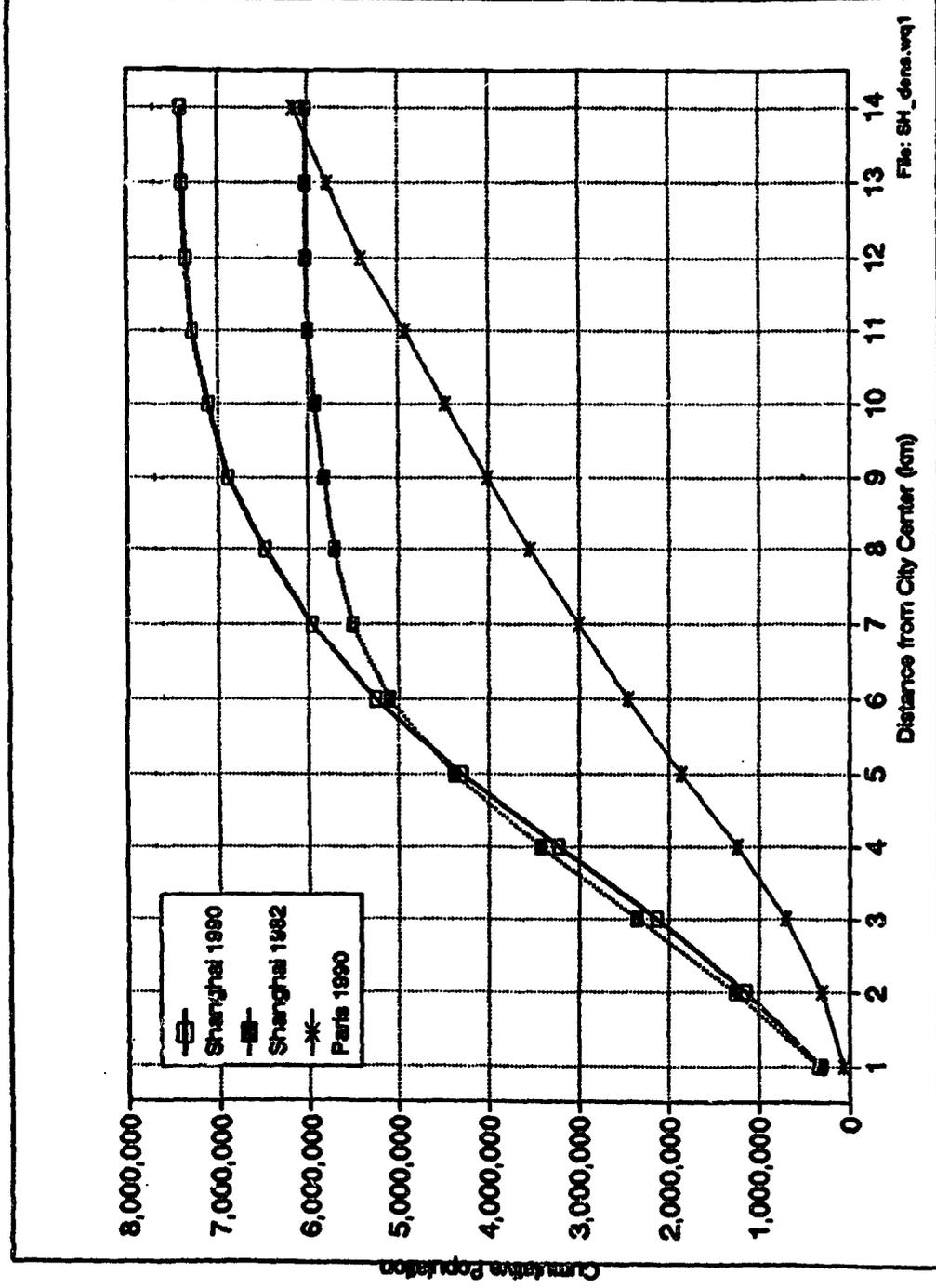


Figure 5.3: SHANGHAI: POPULATION DENSITIES, TRENDS  
COMPARED WITH PARIS



File: SH\_dens.wq1

Figure 5.4: SHANGHAI: POPULATION DENSITY DISTRIBUTION

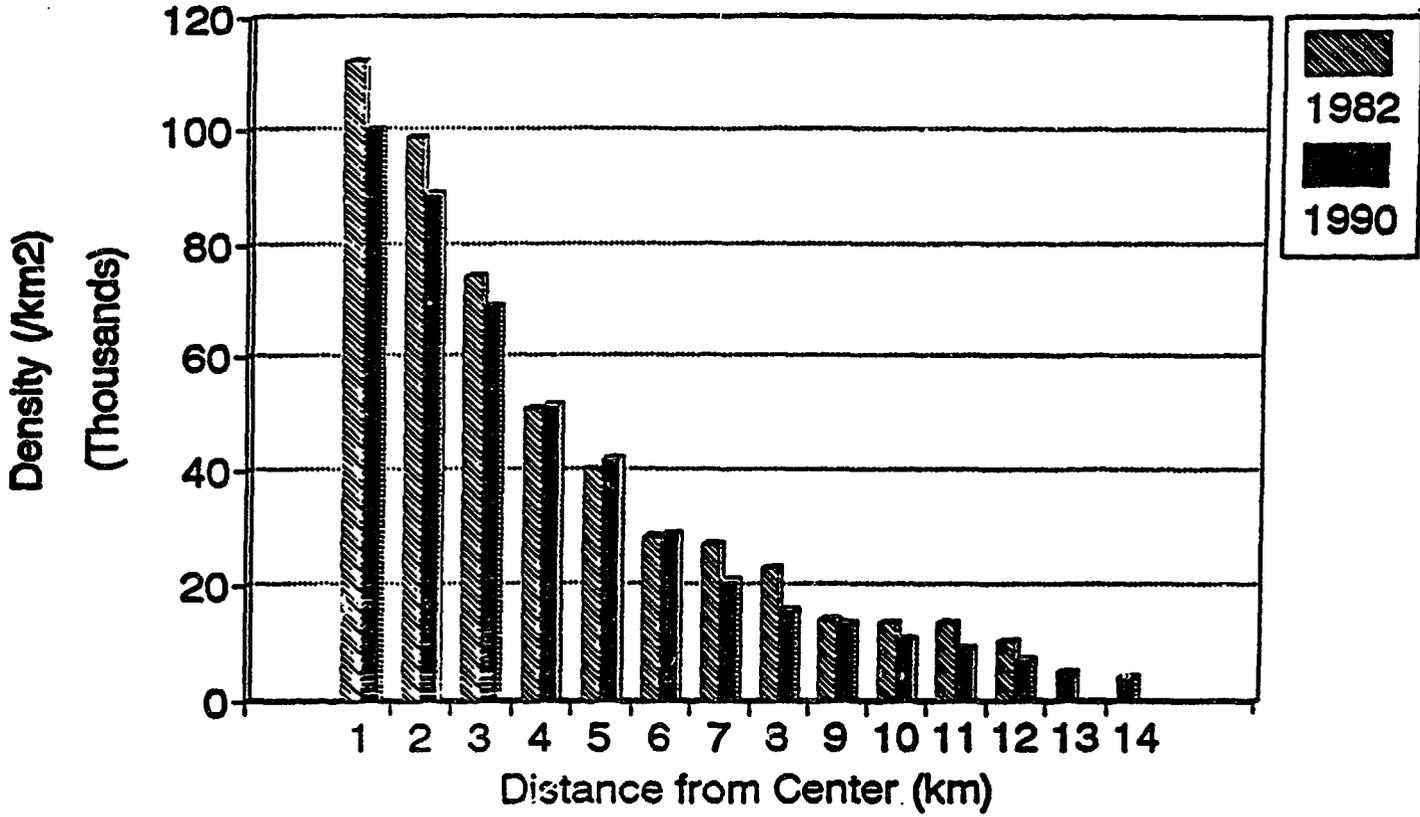


Figure 5.5: SHANGHAI: GROWTH IN BUILT-UP AREA

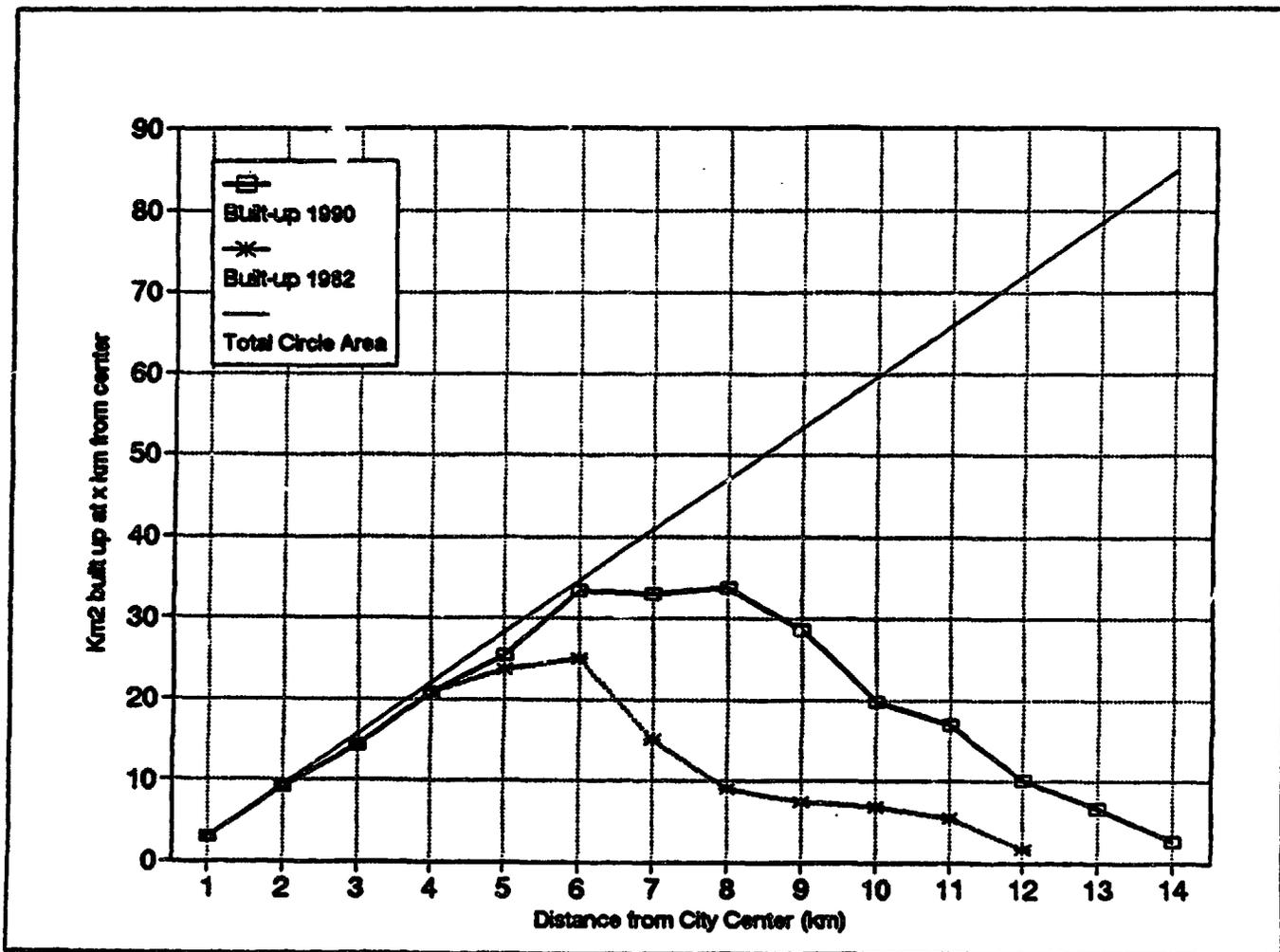
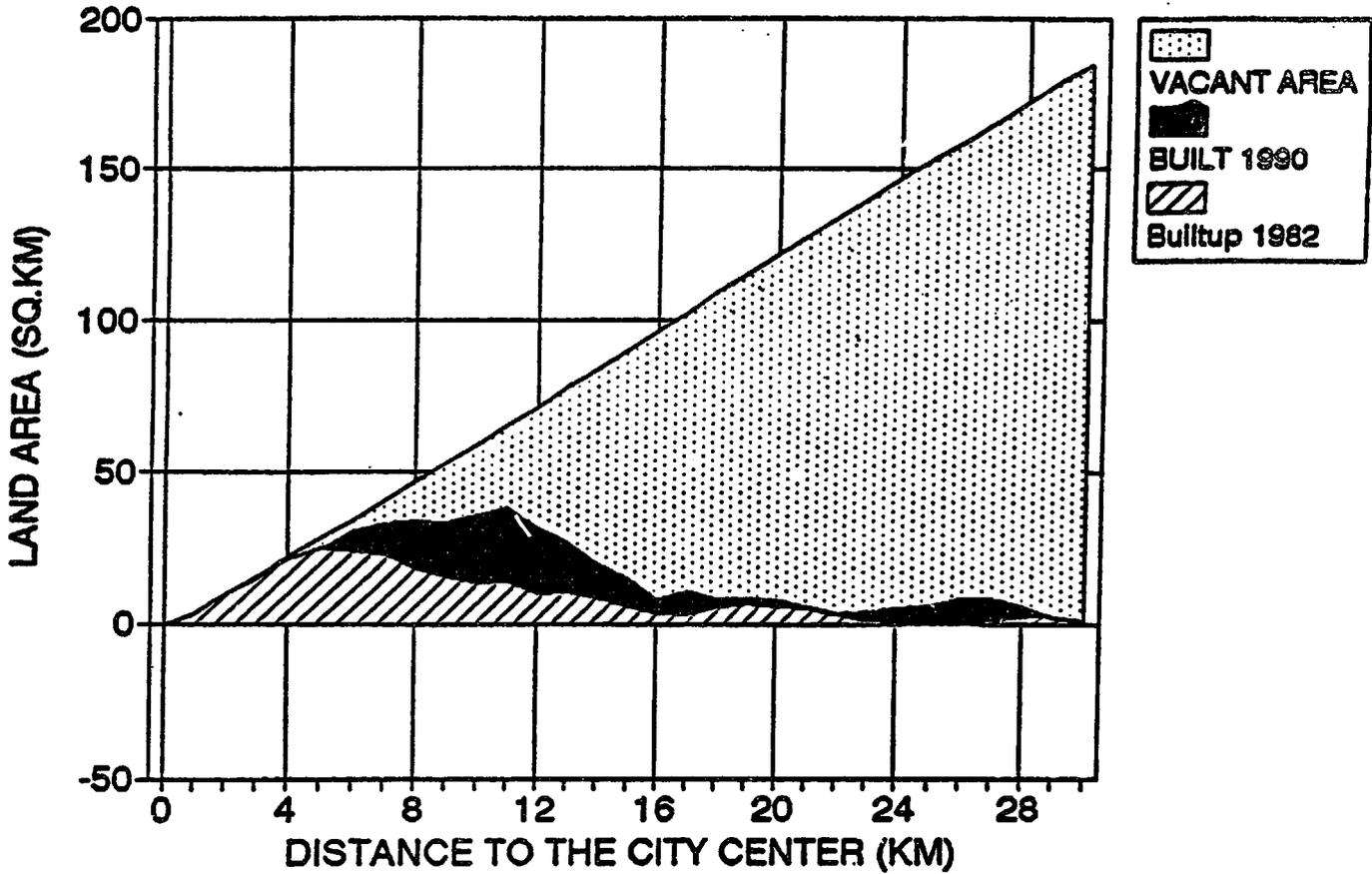
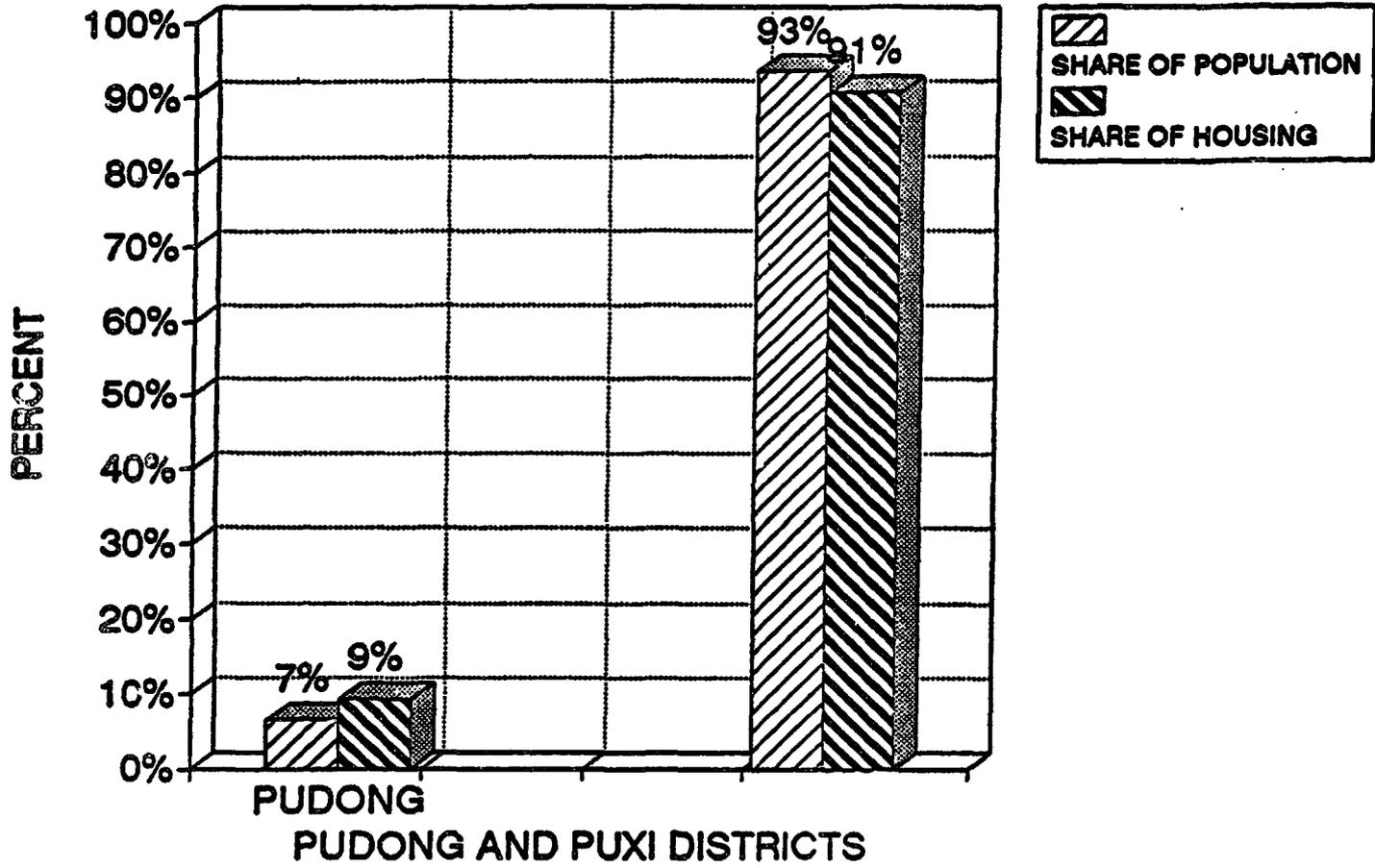


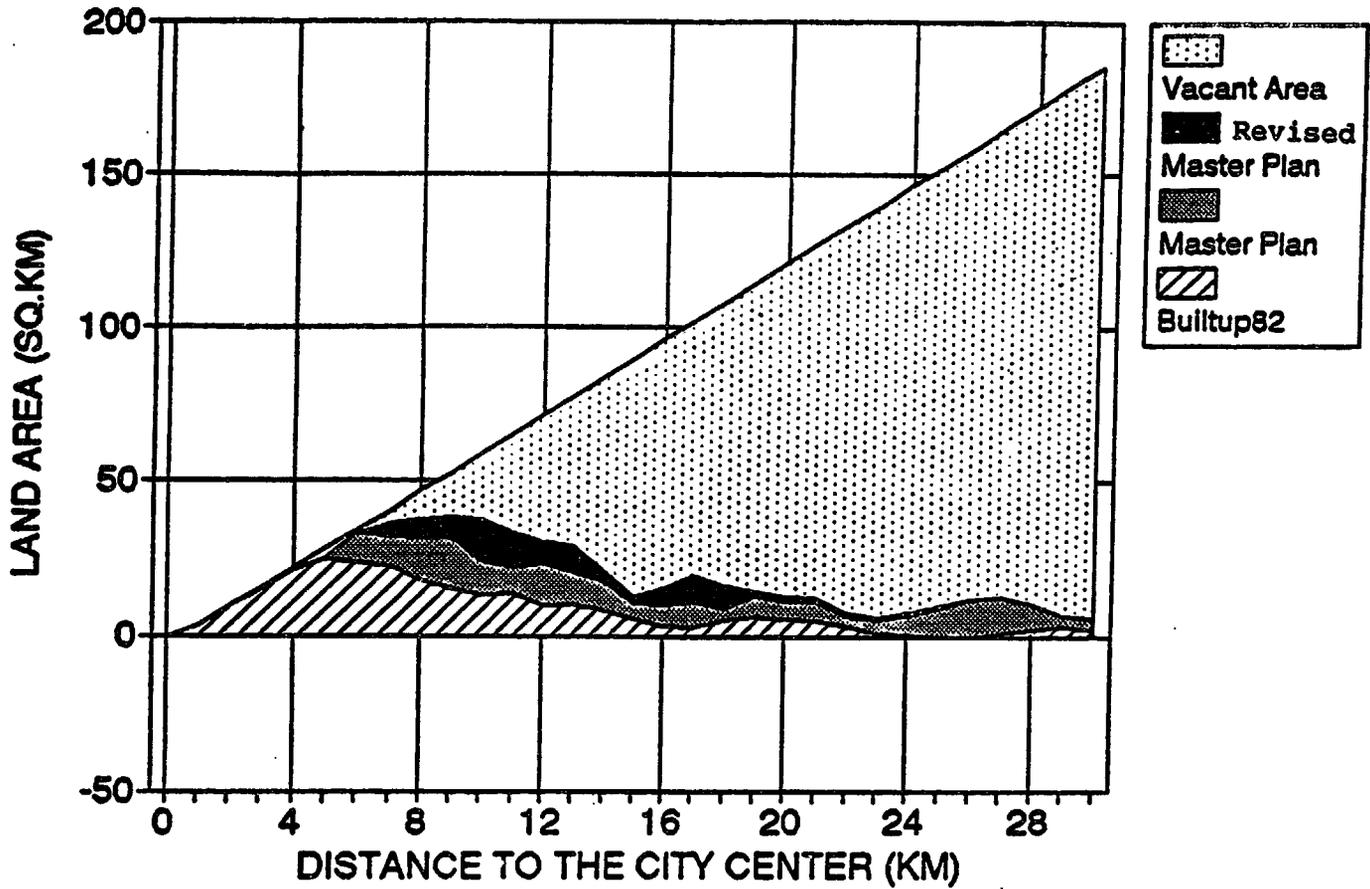
Figure 5.6: SHANGHAI: LAND USES, 1982 AND 1990



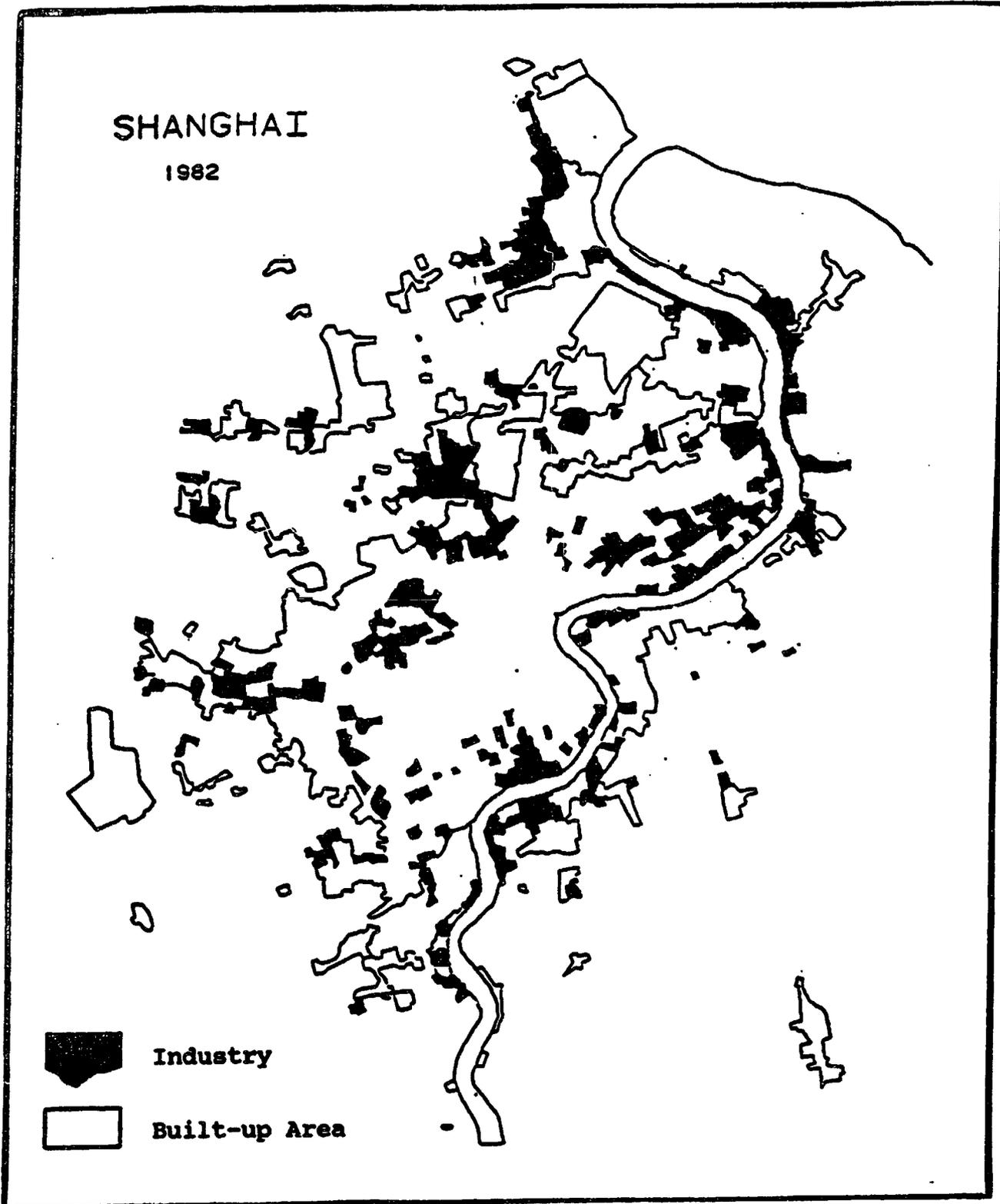
**Figure 5.7: SHARE OF POPULATION, JOBS AND HOUSING BETWEEN PUXI AND PUDONG**



**Figure 5.8: SHANGHAI: LAND USES: EXISTING AND EXPECTED UNDER REVISED MASTER PLAN**



**Figure 5.9: DISTRIBUTION OF SHANGHAI'S INDUSTRIAL LAND IN 1982**



CHINA

URBAN LAND MANAGEMENT: OPTIONS FOR AN EMERGING MARKET ECONOMY

Residential Redevelopment Project Surveys: Issues Raised  
by Real Estate Developers

1. In the course of conducting field surveys in Fuzhou, Guangzhou, Hangzhou, Shanghai and Tianjin, 11 redevelopment project case studies were developed. In most cases, financial information on project costs was obtained directly from REDCs. In some cases, the actual costs have been estimated, based on information gathered on other comparable projects.<sup>1/</sup> This annex provides a brief description of the cases analyzed in Chapter V.

A. Fuzhou: An Deng Project

2. The An Deng project involved the clearance of a 5,536 m<sup>2</sup> site in central Fuzhou. The site was developed into an urban park, and all residents were relocated to a nearby suburban project. Before redevelopment, the site contained 108 households and 342 persons. The old constructed area was 6,213 m<sup>2</sup>, an FAR of 1.12. Nearly all of the units (106) were privately owned, only two were held by the government. The typical owner-occupant had an average floor space of 60 m<sup>2</sup> of constructed space (in terms of living area, the space was 30-34 m<sup>2</sup>) before redevelopment. Afterwards, constructed area averaged 85 m<sup>2</sup> and living area averaged 36-44 m<sup>2</sup> per household.

3. To accommodate the relocation, a new project totaling 16,980 m<sup>2</sup> was constructed in suburban Fuzhou. The total cost of the new project is estimated at Y 8,060,000. A breakdown of the costs is provided in Table 1. The total construction cost works out to Y 475/m<sup>2</sup> of constructed area. In terms of marketable area, the break-even sales price is Y 811/m<sup>2</sup>, assuming that resettled households pay a portion of the costs of their new units. If no funds were received from resettled households, the break-even price would be Y 881/m<sup>2</sup> of marketable area.

4. Resettled tenants, which originally held 6,213 m<sup>2</sup>, received 7,833 m<sup>2</sup> of constructed space at concessionary prices and they purchased an additional 1,467 m<sup>2</sup> at the commercial price of Y 800/m<sup>2</sup>. An additional 7,680 m<sup>2</sup> of housing was constructed and sold commercially at Y 814/m<sup>2</sup>.

5. An Deng site residents received cash compensation for their demolished housing. Because the buildings were old and in poor condition, they got between Y 30 and Y 60/m<sup>2</sup> of constructed space. At the new project, which is located about 3 km from the old site, each household was permitted to purchase

---

<sup>1/</sup> Local authorities charged with overseeing the REDCs cautioned that, in the absence of independent audits, project costs may not always be reported accurately by the developers. Those same authorities, however, provided no specific rebuttals to the case studies reported in this annex.

**Table 1: FUZHOU: AN DENG PROJECT**

Site area (m <sup>2</sup> )	6,670
Total built area	16,980
Residential area	16,980
Marketable area	9,147

Construction costs	Cost (Yuan)	Cost/ site (m <sup>2</sup> )	Cost/ TCA (m <sup>2</sup> )	Cost/ RCA (m <sup>2</sup> )	Cost/ MRA (m <sup>2</sup> )
<b><u>Preconstruction</u></b>					
Relocation payments	385,000	57.72	22.67	22.67	42.09
Site preparation	75,000	11.24	4.42	4.42	8.20
Survey & design	50,000	7.50	2.94	2.94	5.47
On-site services	25,000	3.75	1.47	1.47	2.73
Fees & taxes	450,000	67.47	26.50	26.50	49.20
Subtotal	<u>985,000</u>	<u>147.68</u>	<u>58.01</u>	<u>58.01</u>	<u>107.69</u>
<b><u>Construction</u></b>					
Housing	4,400,000	659.67	259.13	259.13	481.03
Land	1,500,000	224.89	88.34	88.34	163.99
Management fees	100,000	14.99	5.89	5.89	10.93
Contingencies	200,000	29.99	11.78	11.78	21.87
Interest	250,000	37.48	14.72	14.72	27.33
Subtotal	<u>6,450,000</u>	<u>967.02</u>	<u>379.86</u>	<u>379.86</u>	<u>705.15</u>
<b><u>Infrastructure</u></b>					
Water	300,000	14.99	5.89	5.89	10.93
Sewer & drainage	75,000	11.24	4.42	4.42	0.00
Gas	50,000	7.50	2.94	2.94	5.47
Electric	100,000	14.99	5.89	5.89	10.93
Roads	100,000	14.99	5.89	5.89	10.93
Subtotal	<u>625,000</u>	<u>93.70</u>	<u>36.81</u>	<u>36.81</u>	<u>68.33</u>
<b>Total Cost</b>	<b><u>8,060,000</u></b>	<b><u>1,208.40</u></b>	<b><u>474.68</u></b>	<b><u>474.68</u></b>	<b><u>881.16</u></b>

TCA = Total Construction Area.

RCA = Residential Construction Area.

MRA = Marketable Residential Area.

Note: These estimated costs are for off-site new construction of replacement and commodity housing.

the same amount of space as they had before redevelopment at a net price of Y 62/m<sup>2</sup> of constructed space (Y 107 minus Y 45 in compensation). Each household could (and did) purchase an additional 15 m<sup>2</sup> of space at Y 145/m<sup>2</sup>. If households wanted to, they could purchase additional space at the full commercial price of Y 811/m<sup>2</sup> of constructed space. The actual funds generated by this approach are as follows:

**From resettled households:**

Purchase of replacement space (6,213 m <sup>2</sup> ) at Y 62/m <sup>2</sup> :	Y 385,206
Purchase of additional 15 m <sup>2</sup> (1,620 m <sup>2</sup> ) at Y 145/m <sup>2</sup> :	234,900
Purchase of additional space (1,467 m <sup>2</sup> ) at Y 814/m <sup>2</sup> :	1,194,138

**From new commodity housing purchasers:**

Purchase of commodity space (7,680 m <sup>2</sup> ) at Y 814/m <sup>2</sup> :	6,251,520
---	-----------

Total Revenue (16,980 m<sup>2</sup>), average Y 475/m<sup>2</sup>: 8,065,764

6. In cases where the resettled occupants acquired no more than their initial space and the additional 15 m<sup>2</sup>, households paid out Y 8,330 and received compensation of Y 2,589, a net outflow of Y 5,741. Virtually all households purchased the additional 15 m<sup>2</sup> of subsidized space, increasing their constructed area by 26 percent (57.5 to 72.5 m<sup>2</sup> per household). The additional increase of space through the purchase at commodity prices increased unit sizes by an additional 13.3 m<sup>2</sup>. Together, the increase of 15 and 13.3 m<sup>2</sup> boosts unit sizes by nearly 50 percent over the 57.5 m<sup>2</sup> average. On average, each household purchased an additional 13.3 m<sup>2</sup>, paying an additional Y 10,826.

7. By requiring resettled households to pay the difference between the depreciated value of their old unit, and the construction cost of the new space (Y 45 versus Y 107/m<sup>2</sup>) and by requiring them to pay higher prices for additional space, the financial burden of the redevelopment project is lessened for those purchasing commodity housing.

8. For example, if Fuzhou followed Tianjin's policies regarding redevelopment, the 108 households of the An Deng project would have received the 7,833 m<sup>2</sup> of space and would have paid no compensation. Instead, the sales price of the commodity housing would rise from Y 814 to Y 881/m<sup>2</sup>, an increase of 8 percent. The strategy pursued in Fuzhou, where redevelopment project area residents are required to pay for the marginal cost of the new housing, is an appropriate policy option meriting further consideration.

**B. Guangzhou: Jin Hua Project**

9. In 1982 a real estate company specializing in redevelopment was established in Guangzhou. In 1986, it tackled a large redevelopment project in the city center--called Jin Hua. The project site covers 290,000 m<sup>2</sup>. The site was home to 7,492 households and had a population of 25,198. The existing built-up area totaled 335,000 m<sup>2</sup>--reflecting an FAR of 1.16. The redevelopment plan calls for demolition of 277,000 m<sup>2</sup>, and the construction of 220 new buildings, accounting for 737,000 m<sup>2</sup>, an FAR of 2.54. One third of the project will be in the form of high-rise (24-story) buildings.

10. The overall redevelopment concept is to rebuild structures on the site, improve housing conditions of the 7,492 dwellings, provide additional community services and construct an additional 2,907 dwelling units. The total investment of the project is planned at Y 750,032,000. Estimates of the costs of the Jin Hua project are provided in Table 2. When completed, the project will comprise 10,400 units, with a total population of 41,000. As of August 1991, only one fifth of the project had been completed, despite the fact that the project started in 1986. Apparently, financial constraints have dogged the project.

11. There are numerous problems which make it difficult to implement redevelopment projects. The fundamental problem centers around the way in which project are financed. In virtually all cases in China, projects are financed through the sale of marketable commercial units. Existing residents have ironclad property rights guaranteeing the continuance of low rents. Despite the fact that the residential units of long-standing residents are vastly improved (most residents get toilets and kitchens) and which are frequently enlarged, most municipal regulations prohibit rent increases. As a result, redevelopment strategies center on methods for increasing the ratio of marketable commercial units to total constructed units.

12. In Guangzhou, laws on relocation of residents are strict and costly to follow. In the Jin Hua project, only small portions of the 29-hectare site can be developed at a time, because there are so few available relocation units. Another problem is the high costs of infrastructure required to support new redevelopment projects. Dedication requirements for schools, shops, clinic, security offices and so forth add considerable costs, because the facilities are transferred at no cost to the local government. The result of these costs is that the marketable units must shoulder an enormous burden and unless the commodity market is strong, commercial prices cannot be set high enough to recover these costs. Enterprises, the principal buyers of these new commercial units, do not want to pay the full fixed costs of the redevelopment project; they rightly expect to pay the direct cost of a unit plus some markup for profit and overhead.

13. For example, if all the nonresidential space was sold at cost (Y 1,018/m<sup>2</sup>) to either the district government or to shopkeepers, Y 172 million in revenues would be generated. In this case, the break-even sales price of the commodity housing would be reduced from Y 2,622/m<sup>2</sup> to Y 2,021/m<sup>2</sup>, a 23 percent price reduction.

14. Some developers of redevelopment projects have proposed a variety of reforms to reduce project costs. The typical proposals include: changes in tax and land fee policies of the government to exempt or reduce payments for redevelopment projects; subsidizes for infrastructure construction; faster, streamlined approval process for redevelopment projects; increase FAR from 2.8 to 3.0 for redevelopment projects in Guangzhou; and reduce facilities' construction costs by reducing requirements or by receiving government subsidies for community facilities.

15. Fees paid on development projects in Guangzhou are high. For example, 5 percent of total building costs are paid to government at the time building permit is issued, and another 2 percent is paid for air raid shel-

**Table 2: GUANGZHOU: JIN HUA REDEVELOPMENT PROJECT**

Site area (m <sup>2</sup> )	290,000
Total built area	737,000
Residential area	568,000
Marketable area	286,000

Construction costs	Cost (Yuan)	Cost/ site (m <sup>2</sup> )	Cost/ TCA (m <sup>2</sup> )	Cost/ RCA (m <sup>2</sup> )	Cost/ MRA (m <sup>2</sup> )
<b>Preconstruction</b>					
Relocation payments	7,800,000	26.90	10.58	13.73	27.27
Temporary rentals	13,155,000	45.36	17.85	23.16	46.00
Site preparation	630,000	2.17	0.85	1.11	2.20
Survey & design	17,823,000	61.46	24.18	31.38	62.32
On-site services	670,000	2.31	0.91	1.18	2.34
Fees & taxes	115,988,000	399.96	157.38	204.20	405.55
Subtotal	<u>156,066,000</u>	<u>538.16</u>	<u>211.76</u>	<u>274.76</u>	<u>545.69</u>
<b>Construction</b>					
Housing	235,000,000	810.34	318.86	413.73	821.68
Public facilities	145,000,000	500.00	196.74	255.28	506.99
Management fee	37,500,000	129.31	50.88	66.02	131.12
Contingencies	20,000,000	68.97	27.14	35.21	69.93
Interest	29,000,000	100.00	39.35	51.06	101.40
Subtotal	<u>466,500,000</u>	<u>1,608.62</u>	<u>632.97</u>	<u>821.30</u>	<u>1,631.12</u>
<b>Infrastructure</b>					
Water	5,833,000	300.34	118.18	153.35	304.55
Sewer & drainage	5,833,000	20.11	7.91	10.27	20.40
Gas	18,700,000	64.48	25.37	32.92	65.38
Electric	87,100,000	300.34	118.18	153.35	304.55
Roads	10,000,000	34.48	13.57	17.61	34.97
Other	0	0.00	0.00	0.00	0.00
Subtotal	<u>127,466,000</u>	<u>439.54</u>	<u>172.95</u>	<u>224.41</u>	<u>445.69</u>
<b>Total Cost</b>	<b><u>750,032,000</u></b>	<b><u>2,586.32</u></b>	<b><u>1,017.68</u></b>	<b><u>1,320.48</u></b>	<b><u>2,622.49</u></b>

TCA = Total Construction Area.

RCA = Residential Construction Area.

MRA = Marketable Residential Area.

ters. Other fees are levied for: fire services, environmental protection, sewerage, real estate taxes (3 percent), land use fee (3 percent of requisition costs to acquire land), and property registration (1 percent). As a general rule of thumb, bankers and developers use the "one third rule"--total project costs normally divide into three equal parts: land and infrastructure, fees, and construction.

16. In the process of structuring the project, the REDC met with each and every household and negotiated with them a precise settlement in terms of temporary relocation, compensation, and the provision of a new unit. In the Jin Hua project, 6,712 households will return to the project, and each household will receive 13 m<sup>2</sup> of constructed area per person. In terms of living area, the standard is 8 m<sup>2</sup> per capita. Households electing not to return to the area receive Y 10,000 in compensation.

17. The most burdensome redevelopment occurs with the occupants of housing owned by overseas Chinese. These units need to be replaced twice--once to provide new housing for the tenant and once to provide the overseas Chinese with a replacement for their demolished unit. The requirement that overseas Chinese receive units has been a policy of Guangdong Province since 1987. It is intended to reassure the overseas Chinese that the province is a safe haven for investment. While this is a sensible policy, it places an enormous fiscal burden on redevelopment projects.

18. It is projected that the total project will cost Y 750 million. Of the 7,392 households occupying the site, 6,712 will be resettled on the site and will receive approximately 42 m<sup>2</sup> of space per household. Of the total project area of 737,000 m<sup>2</sup>, 38.8 percent, 286,000 m<sup>2</sup> will be marketable, and 282,000 m<sup>2</sup> will be devoted to replacement housing. The remaining space, 169,000 m<sup>2</sup>, is for public facilities such as clinics, schools, markets, etc.

19. Normal profit for developers would be on the order of 8 percent of total costs or, in the above case, Y 200/m<sup>2</sup> of constructed area. However, the project will not achieve that objective in its present form. As Table 2 illustrates, the current break-even price of commodity housing is estimated at Y 2,592/m<sup>2</sup>. This figure is above the sales prices of other comparable commodity housing projects currently on the market in Guangzhou. As of August 1991, commodity housing prices have been running between Y 1,700 to Y 2,400/m<sup>2</sup>, depending on whether the project is located in the city center or in the suburbs. Consequently, the REDC is having difficulties attracting buyers.

20. Guangzhou's Jin Hua project is a good example of how housing policies for existing residents and requirements for public facilities may make projects unattractive. Since the costs of the nonmarketable housing units (units returned to former residents) as well as community facilities must be paid for through the sale of commodity housing, financing redevelopment is difficult.

### C. Hangzhou: Xiao Fuqing Lane Redevelopment Project

21. The project is located in the Xiachen District of Hangzhou City on a 7,350 m<sup>2</sup> site. The small site did not contain public facilities or commercial activities. It was settled with old, preliberation housing which was in poor

condition and overcrowded. About 120 households lived on the site, and each had about 50 m<sup>2</sup> of constructed area--6,000 m<sup>2</sup>. The project was started in 1988 and was completed in 1990. All area residents were resettled on the site and they received 9,530 m<sup>2</sup> of new residential constructed space, averaging about 80 m<sup>2</sup> per household. In addition, 4,485 m<sup>2</sup> of commodity housing was constructed on-site. Limited public facilities were constructed--1,420 m<sup>2</sup>. The total cost of the project was Y 6,993,000, an average of Y 454/m<sup>2</sup> of constructed space. A complete breakdown of the costs is provided in Table 3. Relocation costs, including provision of new housing and temporary shelter, totaled Y 3,372,000. In terms of overall project costs, relocation and resettlement accounted for 48 percent of total costs.

22. All resettled residents were provided new housing and were required to make no payment for it, despite the fact that the quality of their new units was vastly improved and that households received additional space. As a consequence of these generous terms, purchasers of commodity housing pay Y 1,559/m<sup>2</sup>, 3.44 times the actual cost of construction.

23. If Hangzhou followed a redevelopment strategy more in line with Fuzhou than Tianjin, it could reduce the cost burden it places on the purchasers of commodity housing. For example, if the 120 household were require to pay a modest Y 100/m<sup>2</sup> of original space returned (6,000 m<sup>2</sup>) and if additional space, allocated to each household to bring them up to citywide standards of 80 m<sup>2</sup> of constructed space per household, was sold to residents at 50 percent of the actual project cost, Y 227/m<sup>2</sup>, the developer would receive Y 600,000 for the replacement of the original space, and Y 801,310 for the allocation of the 3,530 m<sup>2</sup> of space. After adjusting for these receipts, purchasers of commodity housing would pay Y 1,247/m<sup>2</sup>, a 20 percent reduction. If the public facilities were sold at cost, the commodity housing price would fall even further, to Y 1,103/m<sup>2</sup>.

#### D. Shanghai: Hu Lang Garden Project

24. The Shanghai Real Estate Corporation (SREC) was established in 1983, and works with the 12 Districts to manage and develop housing. It receives rental income of Y 1.04 billion per year, but this is not sufficient to cover management and operating costs. Consequently, the SREC receives an operating subsidy of Y 44 million per year from the Shanghai Municipal Government. Since 1987, it has annually constructed about 160,000 m<sup>2</sup> of housing. In 1991, it anticipates the completion of 170,000 m<sup>2</sup>. So far, it has completed 10 redevelopment projects, one of which is the Hu Lang Garden (White Lily Garden). Hu Lang is located in southwest Shanghai near the second subway exit. The site area is 1.68 hectares. The total constructed area of the site before redevelopment is 12,589 m<sup>2</sup>, reflecting an FAR of 1:0.75.

25. The project was approved by the Planning Bureau in 1985. Relocation was done in 1986, and construction commenced in 1987. The main structures of the high-rise buildings for the overseas market have been completed, and are expected to be finished by the end of 1991. The site was home to 553 households (population of 1,900), occupying 7,809 m<sup>2</sup> of constructed space--14 m<sup>2</sup> per household. Over 80 percent of the housing (6,520 m<sup>2</sup>) was privately owned. The remainder was owned and managed by the municipality. There were seven enterprises occupying the site with a constructed area of 4,780 m<sup>2</sup>.

Table 3: HANGZHOU: XIAO FUQING LANE REDEVELOPMENT PROJECT

Site area (m <sup>2</sup> )	7,350
Total built area	15,417
Residential area	14,015
Marketable area	4,485

Construction costs	Cost (Yuan)	Cost/ site (m <sup>2</sup> )	Cost/ TCA (m <sup>2</sup> )	Cost/ RCA (m <sup>2</sup> )	Cost/ MRA (m <sup>2</sup> )
<b>Preconstruction</b>					
Temporary rentals	357,000	48.57	23.16	25.47	79.60
Site preparation	53,000	7.21	3.44	3.78	11.82
Survey & design	45,000	6.12	2.92	3.21	10.03
On-site services	56,000	7.62	3.63	4.00	12.49
Fees & taxes	1,214,000	165.17	78.75	86.62	270.68
Subtotal	<u>1,725,000</u>	<u>234.69</u>	<u>111.89</u>	<u>123.08</u>	<u>384.62</u>
<b>Construction</b>					
Housing	4,781,000	650.48	310.12	341.13	1,066.00
Public facilities	72,000	9.80	4.67	5.14	16.05
Management fees	81,000	11.02	5.25	5.78	18.06
Contingencies	0	0.00	0.00	0.00	0.00
Interest	85,000	11.56	5.51	6.06	18.95
Subtotal	<u>5,019,000</u>	<u>682.86</u>	<u>325.56</u>	<u>358.12</u>	<u>1,119.06</u>
<b>Infrastructure</b>					
Water	131,000	7.89	3.76	4.14	12.93
Sewer & drainage	25,000	3.40	1.62	1.78	0.00
Gas	0	0.00	0.00	0.00	0.00
Electric	58,000	7.89	3.76	4.14	12.93
Roads	35,000	4.76	2.27	2.50	7.80
Other	0	0.00	0.00	0.00	0.00
Subtotal	<u>249,000</u>	<u>33.88</u>	<u>16.15</u>	<u>17.77</u>	<u>55.52</u>
<b>Total Cost</b>	<u>6,993,000</u>	<u>951.43</u>	<u>453.60</u>	<u>498.97</u>	<u>1,559.20</u>

TCA = Total Construction Area.

RCA = Residential Construction Area.

MRA = Marketable Residential Area.

26. The SREC borrowed a nearby piece of land on which to construct a temporary structures. They also utilized vacant houses owned by other Districts. Some of the site's residents managed to find their own temporary housing as well. One enterprise, the Wan Ti shirt factory was not relocated and the project was structured to allow it to maintain operations. The negotiations between the shirt factory and the REDC are interesting and pertinent. The shirt factory posed no problems for the surrounding neighborhoods; it was not polluting or noisy. The plan was to acquire some of the land from the factory and incorporate it into the scheme for housing development. Based on a series of negotiations, the factory agreed to vacate part of its buildings and give 1,130 m<sup>2</sup> of land. The REDC agreed to provide the factory with 1,695 m<sup>2</sup> of newly constructed space. A new four-story building of 1,251 m<sup>2</sup> was built. The new building cost Y 580,000. The factory paid Y 160,000 for improvements and finishes to upgrade the structure beyond what the regulations warrant. (These funds came from the factory's accumulated building repair account.) The SREC agrees to pay Y 420,000 towards the construction of the building. In addition, the factory is paid Y 20,000 for temporary relocation costs.

27. The redevelopment plan called for the construction of five high-rise buildings on the site. The total new building area after redevelopment is planned to reach 84,000 m<sup>2</sup>, a dramatic increase in the density--an FAR of 1:5.0. The residential uses will total 76,500 m<sup>2</sup>, of which 26,500 m<sup>2</sup> is for the original households (the households receive 3.39 m<sup>2</sup> for every one they originally held. The per-household average constructed area increased to nearly 50 m<sup>2</sup>.

28. The remaining portion of the housing is to be sold as commodity housing to overseas Chinese--50,000 m<sup>2</sup>. These units are contained in three of the five high-rise buildings and are provided with imported elevators and high-quality fittings. In addition to the residential buildings, SREC also provided a 3,000 m<sup>2</sup> market, a 500 m<sup>2</sup> kindergarten and nursery, a 2,600 m<sup>2</sup> civil defense shelter, and a 1,400 m<sup>2</sup> bicycle garage.

29. The total project cost including interest and profit is Y 186,332,000. This works out to an average cost of Y 2,218/m<sup>2</sup> of constructed area. In terms of marketable area, the cost is Y 3,727/m<sup>2</sup>. A breakdown of the costs is provided in Table 4. The targeted sales prices for the commodity housing is \$735/m<sup>2</sup> of constructed area, Y 3,896/m<sup>2</sup>.

30. This example illustrates that redevelopment can be carried out if the commercial units are sold to overseas Chinese residents. On the other hand, if the units were targeted for the domestic market, it is not clear that they could sell for Y 3,800/m<sup>2</sup>. It might be better for the REDC to relocate residents to suburban locations. For example, if SREC relocated tenants and incurred the same costs in the Jian Guo project (Y 950/m<sup>2</sup>), total relocation costs would have increased by Y 25,175,000 (26,500 m<sup>2</sup> times Y 950/m<sup>2</sup>), and the total project cost would have increased to Y 211,507,000. But since all of the residential space would now be marketable, the break-even price per marketable m<sup>2</sup> would decline to Y 2,765 from Y 3,727/m<sup>2</sup>.

Table 4: SHANGHAI: HU LANG GARDEN REDEVELOPMENT PROJECT

Site area (m <sup>2</sup> )	16,800
Total built area	84,000
Residential area	76,500
Marketable area	50,000

Construction costs	Cost (Yuan)	Cost/ site (m <sup>2</sup> )	Cost/ TCA (m <sup>2</sup> )	Cost/ RCA (m <sup>2</sup> )	Cost/ MRA (m <sup>2</sup> )
<b><u>Preconstruction</u></b>					
Relocation payments	2,100,000	125.00	25.00	27.45	42.00
Temporary rentals	0	0.00	0.00	0.00	0.00
Site preparation	3,200,000	190.48	38.10	41.83	64.00
Survey & design	950,000	56.55	11.31	12.42	19.00
On-site services	560,000	33.33	6.67	7.32	11.20
Fees & taxes	12,250,000	729.17	145.83	160.13	245.00
Subtotal	<u>19,060,000</u>	<u>1,134.52</u>	<u>226.90</u>	<u>249.15</u>	<u>381.20</u>
<b><u>Construction</u></b>					
Housing	88,060,000	5,241.67	1,048.33	1,151.11	1,761.20
Public facilities	18,440,000	1097.62	219.52	241.05	368.80
Management fees	2,460,000	146.43	29.29	32.16	49.20
Contingencies/profit	17,012,000	1,012.62	202.52	222.38	340.24
Interest	29,400,000	1,750.00	350.00	384.31	588.00
Subtotal	<u>155,372,000</u>	<u>9,248.33</u>	<u>1,849.67</u>	<u>2,031.01</u>	<u>3,107.44</u>
<b><u>Infrastructure</u></b>					
Water	3,500,000	0.00	0.00	0.00	0.00
Sewer & drainage	0	0.00	0.00	0.00	0.00
Gas	0	0.00	0.00	0.00	0.00
Electric	0	0.00	0.00	0.00	0.00
Roads	0	0.00	0.00	0.00	0.00
Other (off-site)	8,400,000				
Subtotal	<u>11,900,000</u>	<u>708.33</u>	<u>141.67</u>	<u>155.56</u>	<u>238.00</u>
<b>Total Cost</b>	<u>186,332,000</u>	<u>11,091.19</u>	<u>2,218.24</u>	<u>2,435.71</u>	<u>3,726.64</u>

TCA = Total Construction Area.

RCA = Residential Construction Area.

MRA = Marketable Residential Area.

E. Shanghai: Hui Yi Garden Project

31. Hui Yi Garden is located in Xu Hui District and was constructed by the General Urban Construction and Development Company of Xu Hui District. The company specializes in developing housing for overseas Chinese. Units are paid for in foreign currency. The project was started in 1984.

32. The total site area is 1.3 hectares. It was originally occupied by 264 households and 4 enterprises. The housing stock comprised 7,970 m<sup>2</sup>, the four enterprises had 660 m<sup>2</sup>. The total constructed area before redevelopment was 8,630 m<sup>2</sup>, reflecting a low FAR of 1:0.66.

33. The new project, a housing estate, is targeted toward overseas Chinese, and consists of 33 commodity housing units totaling 8,250 m<sup>2</sup>. Because of the upscale target market of the redevelopment project, all former tenants were relocated to other locations.

34. The total cost of the project was Y 46,292,000, averaging Y 5,611/m<sup>2</sup> of gross constructed area, reflecting the substantial relocation costs of Y 19,076,000, which averages out to Y 2,210/m<sup>2</sup> of relocated area. Table 5 provides a breakdown of construction costs. The basic construction cost of the new units is Y 1,300/m<sup>2</sup>, and reflects the high-quality construction appropriate for the target market. The selling prices are set at \$1,550/m<sup>2</sup> (Y 8,215), a premium of 46 percent over costs. Part of the increase reflects differential rent (set at 20 percent) and profit of 10 percent.

35. Marketing of the project started in December 1988. The project was sold out in September 1990, averaging about two sales per month. Ads for the units were placed only in Shanghai media--newspapers and local radio stations. Purchasers carried most of the financial burden. Upon signing a contract, 50 percent of the purchase price was paid. An additional 30 percent was paid at the completion of the shell, and the final 20 percent at move-in.

36. Like the Jian Guo project, Hui Yi Garden illustrates the financial feasibility of redevelopment projects which can relocate prior residents and build for higher-revenue-producing users. For example, the overseas Chinese pay over Y 8,000/gross m<sup>2</sup> for housing and relocated residents were rehoused elsewhere for Y 1,300/m<sup>2</sup> (the previous residents occupied 7,970 m<sup>2</sup> but were provided with 12,904 m<sup>2</sup> of replacement housing--1.62 new m<sup>2</sup> for each old one). In the Hui Yi case, the differential in prices is substantial and provides an opportunity to finance projects by exploiting the differences in the prices.

F. Shanghai: Jian Guo Redevelopment Project

37. The Jian Guo redevelopment project was constructed by the China State Housing and Real Estate Company in 1985. The 1.9 hectare site was occupied by very old two- and three-story buildings. Before redevelopment the site contained 1,394 dwelling units and 45 enterprises. The old residential dwellings were quite small, averaging approximately 15 m<sup>2</sup> for a total of 21,221 m<sup>2</sup>. Forty-five enterprises occupied 5,000 m<sup>2</sup>. It was estimated that it would cost approximately Y 22 million to rehabilitate the old housing units and the cost, at nearly Y 16,000/unit, would be difficult to recover from the existing tenants. The overall density of the project before redevelopment was

Table 5: SHANGHAI: HUI YI GARDEN REDEVELOPMENT PROJECT

Site area (m <sup>2</sup> )	13,000
Total built area	8,250
Residential area	8,250
Marketable area	8,250

Construction costs	Cost (Yuan)	Cost/ site (m <sup>2</sup> )	Cost/ TCA (m <sup>2</sup> )	Cost/ RCA (m <sup>2</sup> )	Cost/ MRA (m <sup>2</sup> )
<b><u>Preconstruction</u></b>					
Relocation payments	18,696,000	1,438.15	2,266.18	2,266.18	2,266.18
Temporary rentals	380,000	29.23	46.06	46.06	46.06
Site preparation	200,000	15.38	24.24	24.24	24.24
Survey & design	240,000	18.46	29.09	29.09	29.09
On-site services	280,000	21.54	33.94	33.94	33.94
Fees & taxes	4,575,000	351.92	554.55	554.55	554.55
Subtotal	<u>24,371,000</u>	<u>1,874.69</u>	<u>2,954.06</u>	<u>2,954.06</u>	<u>2,954.06</u>
<b><u>Construction</u></b>					
Housing	10,730,000	825.38	1,300.61	1,300.61	1,300.61
Public facilities	2,150,000	165.38	260.61	260.61	260.61
Management fees	728,000	56.00	88.24	88.24	88.24
Contingencies	1,823,000	140.23	220.97	220.97	220.97
Interest	3,670,000	282.31	444.85	444.85	444.85
Subtotal	<u>19,101,000</u>	<u>1,469.31</u>	<u>2,315.27</u>	<u>2,315.27</u>	<u>2,315.27</u>
<b><u>Infrastructure</u></b>					
Water	1,070,000	134.62	212.12	212.12	212.12
Sewer & drainage	0	0.00	0.00	0.00	0.00
Gas	0	0.00	0.00	0.00	0.00
Electric	1,750,000	134.62	212.12	212.12	212.12
Roads	0	0.00	0.00	0.00	0.00
Other	0	0.00	0.00	0.00	0.00
Subtotal	<u>2,820,000</u>	<u>216.92</u>	<u>341.82</u>	<u>341.82</u>	<u>341.82</u>
<b><u>Total Cost</u></b>	<b><u>46,292,000</u></b>	<b><u>3,560.92</u></b>	<b><u>5,611.15</u></b>	<b><u>5,611.15</u></b>	<b><u>5,611.15</u></b>

TCA = Total Construction Area.

RCA = Residential Construction Area.

MRA = Marketable Residential Area.

moderate--an FAR of 1:1.38. Because of the high costs of rehabilitation and the site's important location in the center of Shanghai, all of the households and most enterprises were relocated to a suburban site.

38. Relocated households received 60 m<sup>2</sup> of living area. The estimated costs of the residential relocation is Y 79,458,000, Y 950/m<sup>2</sup>, well below levels that would prevail if the households were rehoused on the site. Thirty of the 45 enterprise were relocated at a cost of Y 9,660,000, a average cost of Y 322,000 per enterprise.

39. The company built a 88,400 m<sup>2</sup> mixed-use project on the site. Residential uses comprise 42,900 m<sup>2</sup>, retail and other commercial activities make up 41,200 m<sup>2</sup>. Public facilities will account for 4,300 m<sup>2</sup>. The completed project will has an FAR of 1:4.65.

40. The total cost of the project, including all charges for relocation is Y 266,903,000. In terms of total constructed area, the cost averages out to approximately Y 3,020/m<sup>2</sup>. In terms of marketable area, the cost per m<sup>2</sup> is a little higher, Y 3,174. Table 6 presents a summary of the project's costs.

41. If all prior residential users had been resettled on the site, the total project cost would have been approximately Y 185 million. However, since these households would have been allocated 60 m<sup>2</sup> each, virtually all of the newly constructed space would not have been marketable. It would have been impossible to carry out the project unless the tenants were willing and able to pay for the improvements.

42. Based on the location of the project, the quality of construction and risk factors, the REDC initially set the prices of the high-rise commodity housing at Y 2,600/m<sup>2</sup> of constructed area and for the commercial buildings, prices were set at Y 3,200/m<sup>2</sup>. Based on these prices, gross revenues were Y 243,380,000. Thus, this project will not break even, losing Y 23,523,000 (assuming that all fees and charges are levied). However, as of January 1992, the Shanghai Municipal Government permitted developers to set prices at cost (including interest expenses) plus 10 percent profit. Under this new pricing regime, China State Housing & Real Estate Company would be able to sell the space at an average price of Y 3,470/m<sup>2</sup>. While this price is considerably higher, it is still below the market price for space in the area--Y 4,000 to Y 5,000/m<sup>2</sup>.

43. This project provides a good example of how redevelopment projects can be structured more feasibly if tenants are relocated to suburban areas. In the current case, resettled households had their housing units increased from 15 m<sup>2</sup> to 60 m<sup>2</sup> and they did not have to pay any additional fees.

#### G. Shanghai: Ordinary Citizen Project

44. This is a large redevelopment project located in the southwest corner of the inner city. The project was initiated in 1985 by the Xu Hui District's and involved the participation of several enterprises. They created a corporation called the United Construction Office. The site comprises 16.5 hectares and, before redevelopment, consisted of 3,620 simple houses and 62 small enterprises. It was one of 23 slum areas identified by the Shanghai

Table 6: SHANGHAI: JIAN GUO REDEVELOPMENT PROJECT

Site area (m <sup>2</sup> )	19,000
Total built area	88,400
Residential area	42,900
Commercial area	41,200
Marketable area	84,100

Construction costs	Cost (Yuan)	Cost/ site (m <sup>2</sup> )	Cost/ TCA (m <sup>2</sup> )	Cost/ RCA (m <sup>2</sup> )	Cost/ MRA (m <sup>2</sup> )
<b>Preconstruction</b>					
Relocation payments	89,118,000	4,690.42	1,008.12	2,077.34	1,059.67
Temporary rentals	140,000	7.37	1.58	3.26	1.66
Site preparation	1,060,000	55.79	11.99	24.71	12.60
Survey & design	1,410,000	74.21	15.95	32.87	16.77
On-site services	530,000	27.89	6.00	12.35	6.30
Fees & taxes	29,300,000	1,542.11	331.45	682.98	348.39
Subtotal	<u>121,558,000</u>	<u>6,397.79</u>	<u>1,375.09</u>	<u>2,833.52</u>	<u>1,445.40</u>
<b>Construction</b>					
Housing	42,830,000	2,254.21	484.50	998.37	509.27
Commercial buildings	49,800,000				
Public facilities	4,340,000	228.42	49.10	101.17	51.61
Management fees	6,690,000	352.11	75.68	155.94	79.55
Contingencies	9,670,000	508.95	109.39	225.41	114.98
Interest	30,321,000	1,595.84	343.00	706.78	360.54
Subtotal	<u>143,651,000</u>	<u>7,560.58</u>	<u>1,625.01</u>	<u>3,348.51</u>	<u>1,708.10</u>
<b>Infrastructure</b>					
Water	150,000	59.47	12.78	26.34	13.44
Sewer & drainage	220,000	11.58	2.49	5.13	2.62
Gas	130,000	6.84	1.47	3.03	1.55
Electric	1,130,000	59.47	12.78	26.34	13.44
Roads	64,000	3.37	0.72	1.49	0.76
Other	3,090,000				
Subtotal	<u>1,694,000</u>	<u>89.16</u>	<u>19.16</u>	<u>39.49</u>	<u>20.14</u>
<b>Total Cost</b>	<b><u>266,903,000</u></b>	<b><u>14,047.53</u></b>	<b><u>3,019.26</u></b>	<b><u>6,221.52</u></b>	<b><u>3,173.64</u></b>

TCA = Total Construction Area.

RCA = Residential Construction Area.

MRA = Marketable Residential Area.

Planning and Design Institute's 1985 survey. The residential area totaled 103,040 m<sup>2</sup> of constructed area, of which 21,055 m<sup>2</sup> was under municipal ownership and 81,985 was under private ownership. The houses were quite primitive and small (averaging 28 m<sup>2</sup> on average). There was no sewer system serving the area, and water was provided by standpipes. Residents of municipal housing received no compensation for losing their house. If they choose to relocate, their new rent will be Y 0.4/month/m<sup>2</sup> of constructed area. If they choose to remain on-site, they must pay Y 0.5/month/m<sup>2</sup> of constructed area. Nominal compensation was paid to private owners--Y 20/m<sup>2</sup>. This amount was based on individual surveys of properties and regulations promulgated by the Shanghai Municipal Government.

45. The small businesses had 13,000 m<sup>2</sup> of space. Thus, before redevelopment, the site contained 116,040 m<sup>2</sup>, reflecting an FAR of 1:0.7.

46. Despite the fact that the area was in dire need of redevelopment, the local district could not afford to fund the redevelopment or pay to upgrade existing housing structures. Instead, they decided to ask the participation of work units with shops or workers located in the site area. Of the 62 units, 43 agreed to provide financial assistance to carry out the project. A cumbersome management structure was designed to guide the project and, ultimately, the redevelopment project ran into serious problems. The project was undercapitalized and the 43 enterprises had problems coming up with money to meet periodic calls for capital pay-in. An REDC was brought into capitalize the project and help get it completed.

47. The developer brought in to save the project was the Xu Hui District General Company of the City Construction and Development Company. The company was chosen by the previous partnership because it was well-capitalized. Originally, the 43 enterprises were going to self-finance the project and then split the 111,000 m<sup>2</sup> of commodity housing according to their capital contribution. Instead, the REDC financed the completion of the project and will receive a share of the 111,000 m<sup>2</sup> of commodity housing, which it will sell off to repay its loan and take out its profit. The plan for selling the units is to price them at cost plus 10 percent (Y 3,968/m<sup>2</sup> of constructed area). The target market centers on Shanghai residents.

48. Even after reorganization, the management structure of the project is complex. The project is managed by a Representative Committee of 44 members (the original 43 enterprises and the REDC). There is a Directors Office comprised of four directors, chosen by the District Government. The individuals represent the interests of residents and enterprises. Under the Directors office are five Departments: planning, construction, materials, relocation and administration and finance. Most of these offices are staffed by REDC professionals.

49. In the reworked project, 400 households (out of 3,620) elected to relocate to other areas. The remaining 3,220 households will be allocated 178,000 m<sup>2</sup>, between 45 and 55 m<sup>2</sup> of constructed area, almost double what they had initially. These households will be relocated into 37 walk-up flats and one 24-story high-rise building. The remaining 111,000 m<sup>2</sup> of housing will be sold as commodity housing, and is programmed into 10 high-rise buildings.

50. The total cost of the project is estimated to be Yuan 400,470,000--Y 1,232/m<sup>2</sup> of constructed area (see Table 7 for a breakdown of the project costs). The enterprises partially paid for the new units, by donating materials (estimated to be Y 91 million). They will also pay all taxes and interest charges accrued by the project. Enterprises provided temporary housing for their workers and assisted in their relocation.

#### H. Shanghai: Tian He Project

51. The Tian He project is located in the Lu Wan District. Its site area is 4,700 m<sup>2</sup>. Before redevelopment, the site contained a constructed area of 13,880 m<sup>2</sup>, reflecting an FAR of 1:2.95. The population density was extremely high, and the buildings were very old and deteriorated. To compound problems, the site was subject to persistent flooding problems. Before redevelopment, there were 204 households (12,200 m<sup>2</sup>, an average of 60 m<sup>2</sup>/unit) and eight shops located on the site (1,680 m<sup>2</sup>).

52. After redevelopment, all shops were provided with new and larger space on the site (increased by 20 percent to 2,016 m<sup>2</sup>). Housing was both privately and municipally owned and about 45 percent of the households were resettled on-site. Upon completion, the new project contained approximately 17,200 m<sup>2</sup> of constructed space--an FAR of 1:3.66. The redevelopment plan called for relocating 112 households to Pudong, keeping 92 houses on the site. The remaining households will receive 7,600 m<sup>2</sup>--82.6 m<sup>2</sup> on average. The households being relocated to Pudong will be housed in two projects being built by CEC. The relocation negotiation and the management of the process was jointly administered by the CEC and the Lu Wan District. Those going to Pudong were self-selected, and the relocation regulations offer a strong incentive for opting to go to Pudong. In the initial stages, only 60 households wanted to relocate, but incentives (larger dwelling units) were offered to persuade more to go to Pudong. Those who stayed tend to be older, whose member households work close to home.

53. To help finance the project, 7,600 m<sup>2</sup> of commodity housing was developed. The total cost of the project was Y 16,607,000. The revenue from the sale of the 92 housing units is projected to reach Y 16 million and come close to break-even. Table 8 presents a cost breakdown of the project. This project, like Jian Guo and Hui Yi, illustrates the potential feasibility of carrying out redevelopment projects which are based on the relocation of all or a portion of the existing residents. In Shanghai, given the high inner-city population densities and the relatively cramped living conditions, it is extremely difficult to resettle all existing residents on-site. Instead, a variety of incentives can be offered to encourage tenants to opt for suburban housing locations.

#### I. Shanghai: Ying Xiang Villas Project

54. Ying Xiang Villas is located in the Yang Pu District of Shanghai. The 5.5 hectare site is located in the northeast portion of the city center. This redevelopment project was initiated by the China State Housing and Real Estate Development Corporation in March 1985. Before redevelopment, the project contained approximately 33,000 m<sup>2</sup> of buildings--1,400 dwelling units and over 40 enterprises. The site had a population of 5,000. The area was of

**Table 7: SHANGHAI: ORDINARY CITIZEN REDEVELOPMENT PROJECT**

Site area (m <sup>2</sup> )	165,000
Total built area	325,000
Residential area	289,000
Marketable area	111,000

Construction costs	Cost (Yuan)	Cost/ site (m <sup>2</sup> )	Cost/ TCA (m <sup>2</sup> )	Cost/ RCA (m <sup>2</sup> )	Cost/ MRA (m <sup>2</sup> )
<b><u>Preconstruction</u></b>					
Relocation payments	1,900,000	11.52	5.85	6.57	17.12
Temporary rentals	1,000,000	6.06	3.08	3.46	9.01
Site preparation	2,000,000	12.12	6.15	6.92	18.02
Survey & design	1,300,000	7.88	4.00	4.50	11.71
On-site services	650,000	3.94	2.00	2.25	5.86
Fees & taxes	35,500,000	215.15	109.23	122.84	319.82
Subtotal	<u>42,350,000</u>	<u>256.67</u>	<u>130.31</u>	<u>146.54</u>	<u>381.53</u>
<b><u>Construction</u></b>					
Housing	293,000,000	1,775.76	901.54	1,013.84	2,639.64
Public facilities	18,540,000	112.36	57.05	64.15	167.03
Management fees	6,500,000	39.39	20.00	22.49	58.56
Contingencies	0	0.00	0.00	0.00	0.00
Interest	32,500,000	196.97	100.00	112.46	292.79
Subtotal	<u>350,540,000</u>	<u>2,124.48</u>	<u>1,078.58</u>	<u>1,212.94</u>	<u>3,158.02</u>
<b><u>Infrastructure</u></b>					
Water	1,625,000	9.09	4.62	5.19	13.51
Sewer & drainage	815,000	4.94	2.51	2.82	0.00
Gas	975,000	5.91	3.00	3.37	8.78
Electric	1,500,000	9.09	4.62	5.19	13.51
Roads	815,000	4.94	2.51	2.82	7.34
Other	1,850,000	11.21	5.69	6.40	16.67
Subtotal	<u>7,580,000</u>	<u>45.94</u>	<u>23.32</u>	<u>26.23</u>	<u>68.29</u>
<b>Total Cost</b>	<b><u>400,470,000</u></b>	<b><u>2,427.09</u></b>	<b><u>1,232.22</u></b>	<b><u>1,385.71</u></b>	<b><u>3,607.84</u></b>

TCA = Total Construction Area.  
RCA = Residential Construction Area.  
MRA = Marketable Residential Area.

Table 8: SHANGHAI: TIAN HE REDEVELOPMENT PROJECT

Site area (m <sup>2</sup> )	4,700
Total built area	17,200
Commercial area	2,000
Residential area	15,200
Marketable area	7,600

Construction costs	Cost (Yuan)	Cost/ site (m <sup>2</sup> )	Cost/ TCA (m <sup>2</sup> )	Cost/ RCA (m <sup>2</sup> )	Cost/ MRA (m <sup>2</sup> )
<b>Preconstruction</b>					
Relocation payments	4,158,000	884.68	241.74	273.55	547.11
Temporary rentals	0	0.00	0.00	0.00	0.00
Site preparation	1,000,000	212.77	58.14	65.79	131.58
Survey & design	0	0.00	0.00	0.00	0.00
On-site services	0	0.00	0.00	0.00	0.00
Fees & taxes	2,090,000	444.68	121.51	137.50	275.00
Subtotal	<u>7,248,000</u>	<u>1,542.13</u>	<u>421.40</u>	<u>476.84</u>	<u>953.68</u>
<b>Construction</b>					
Housing	5,035,000	1,071.28	292.73	331.25	662.50
Commercial buildings	663,000	141.06	38.55	43.62	87.24
Public facilities	2,541,000	540.64	147.73	167.17	334.34
Management fees	107,000	22.77	6.22	7.04	14.08
Contingencies	462,000	98.30	26.86	30.39	60.79
Interest	320,000	68.09	18.60	21.05	42.11
Subtotal	<u>9,128,000</u>	<u>1,942.13</u>	<u>530.70</u>	<u>600.53</u>	<u>1,201.05</u>
<b>Infrastructure</b>					
Water	231,000	0.00	0.00	0.00	0.00
Sewer & drainage	0	0.00	0.00	0.00	0.00
Gas	0	0.00	0.00	0.00	0.00
Electric	0	0.00	0.00	0.00	0.00
Roads	0	0.00	0.00	0.00	0.00
Other	0	0.00	0.00	0.00	0.00
Subtotal	<u>231,000</u>	<u>49.15</u>	<u>13.43</u>	<u>15.20</u>	<u>30.39</u>
<b>Total Cost</b>	<u>16,607,000</u>	<u>3,533.40</u>	<u>965.52</u>	<u>1,092.57</u>	<u>2,185.13</u>

TCA = Total Construction Area.

RCA = Residential Construction Area.

MRA = Marketable Residential Area.

relatively low density--an FAR of 1:0.6. The relocation negotiations were handled by the Yang Pu District government. The site was then purchased and developed by the Chung Wah Real Estate Development Corporation. Both the District and Chung Wah Real Estate Development Corporation will share profits from the redevelopment.

55. Redevelopment of the site will result in a significant increase in the density of development. When completed, the project will contain 190,000 m<sup>2</sup>, an FAR of 1:3.45. The project is divided into three phases: phase 1 was completed in 1991 and phase 2 started in 1991. About 86 percent of the original occupants will be rehoused in 85,000 m<sup>2</sup> of on-site replacement housing. Another 14,000 m<sup>2</sup> of replacement housing located nearby will also be used for rehousing. Thus, the redevelopment site occupants will receive about 3 m<sup>2</sup> of new housing space (constructed area) for each m<sup>2</sup> they occupied, and their new housing will have a constructed area of 71 m<sup>2</sup>.

56. Considerable commodity housing will be constructed on-site-- 88,000 m<sup>2</sup>. These units will be sold to enterprises and individuals. In addition, 17,000 m<sup>2</sup> of public facilities will be constructed as well.

57. The completed project cost is Y 153,458,000, an average of Y 808/m<sup>2</sup> of constructed space. As Table 9 illustrates, the break-even sales price per m<sup>2</sup> of marketable space is Y 1,744 and is well within the prices of comparable commodity housing projects offered for sale in Shanghai in the early 1990s. Yang Xiang Redevelopment Project reveals the easy feasibility of projects, which are developed on sites where densities and FARs can be substantially increased. In this particular case, the FAR increased nearly fivefold from 0.6 to 3.45. As a result, even after accommodating 86 percent of the residents and providing them with three times more space, the constructed area of the project could still be doubled to provide 88,000 m<sup>2</sup> of commodity housing space.

#### J. Tianjin: Pingshan Road Redevelopment Project

58. The Pingshan Road redevelopment project was developed by the Tianjin Real Estate Development Corporation (TREDC). Started in 1985, the project took 1.1 years to complete. The project has a site area of 1.35 hectares. Before redevelopment, the site contained 8,756 m<sup>2</sup> of buildings, all of which was demolished. Before development, the FAR was 0.65. There were 253 housing units consisting of one-story unreinforced brick structures, averaging less than 50 m<sup>2</sup>/unit before the redevelopment. The breakdown of existing units was as follows: 154 one-room; 89 two-room; and 10 three-room. The average living space was 20.2 m<sup>2</sup> per household. The housing contained no toilets and had only simple kitchen facilities; there were no on-site facilities such as schools, shopping, or health care.

59. In the process of redevelopment, residents were granted relocation assistance. Most of those relocated lived with relatives or close friends. They received a payment of Y 10/month. Those that could not find shelter with relatives or friends went to dislocation buildings. They received a lump-sum payment of Y 150. In some cases, the households living in dislocation shelters had their enterprises pay the monthly rent. The rent in the dislocation shelters was Y 1/month/room. The actual relocation period ran 18 months.

**Table 9: SHANGHAI: YING XIANG REDEVELOPMENT PROJECT  
(Estimated)**

Site area (m <sup>2</sup> )	55,000
Total built area	190,000
Residential area	173,000
Marketable area	88,000

Construction costs	Cost (Yuan)	Cost/ site (m <sup>2</sup> )	Cost/ TCA (m <sup>2</sup> )	Cost/ RCA (m <sup>2</sup> )	Cost/ MRA (m <sup>2</sup> )
<b><u>Preconstruction</u></b>					
Relocation payments	43,080,000	783.27	226.74	249.02	489.55
Temporary rentals	0	0.00	0.00	0.00	0.00
Site preparation	250,000	4.55	1.32	1.45	2.84
Survey & design	725,000	13.18	3.82	4.19	8.24
On-site services	358,000	6.51	1.88	2.07	4.07
Fees & taxes	18,800,000	341.82	98.95	108.67	213.64
Subtotal	<u>63,213,000</u>	<u>1,149.33</u>	<u>332.70</u>	<u>365.39</u>	<u>718.33</u>
<b><u>Construction</u></b>					
Housing	59,400,000	1,080.00	312.63	343.35	675.00
Public facilities	5,830,000	106.00	30.68	33.70	66.25
Management fees	3,650,000	66.36	19.21	21.10	41.48
Contingencies	0	0.00	0.00	0.00	0.00
Interest	17,300,000	314.55	91.05	100.00	196.59
Subtotal	<u>86,180,000</u>	<u>1,566.91</u>	<u>453.58</u>	<u>498.15</u>	<u>979.32</u>
<b><u>Infrastructure</u></b>					
Water	1,200,000	12.73	3.68	4.05	7.95
Sewer & drainage	420,000	7.64	2.21	2.43	0.00
Gas	535,000	9.73	2.82	3.09	6.08
Electric	700,000	12.73	3.68	4.05	7.95
Roads	460,000	8.36	2.42	2.66	5.23
Other	750,000	13.64	3.95	4.34	8.52
Subtotal	<u>4,065,000</u>	<u>73.91</u>	<u>21.39</u>	<u>23.50</u>	<u>46.19</u>
<b>Total Cost</b>	<b>153,458,000</b>	<b>2,790.15</b>	<b>807.67</b>	<b>887.04</b>	<b>1,743.84</b>

TCA = Total Construction Area.

RCA = Residential Construction Area.

MRA = Marketable Residential Area.

60. At the completion of the project, all relocatees returned and continued paying the same monthly rent per m<sup>2</sup> as before, despite the fact that they now live in a vastly improved environment (they all now have kitchens and toilets and, in some cases, they get slightly more space). Rents paid per m<sup>2</sup> are set by the municipality, and currently stand at Y 0.2/m<sup>2</sup>/month. This rent does not cover maintenance, let alone debt service. The return of units to these prior residents at very low rents generates no income to support redevelopment construction costs. Tenants of municipal units were not compensated for the loss of their unit, since they were given new housing. After completion of the project, the municipality was granted title to the new units.

61. In the case of privately owned units, owners received compensation of the loss of their houses. The actual amount of building compensation is set according to statute. In Tianjin, the statute sets prices according to four classes of buildings. In the case of Pingshan Road, building compensation payments were Y 36,822, about Y 4.21/m<sup>2</sup> of preredevlopment constructed area. After redevelopment, the private owners become tenants in municipally owned housing.

62. Redevelopment increased the constructed area of the Pingshan Road project from 8,756 to 33,967 m<sup>2</sup>, an increase of over 3.5 times more space. The FAR rose to 2.37. The size of the dwelling units in the redevelopment projects is generous by Tianjin standards, averaging from 34 to 90 m<sup>2</sup> for one- to four-room units. In virtually all cases, preredevlopment households received housing units equal to or larger than their previous units. All of the new units have individual toilets and kitchens. On a per capita basis, the units are much larger, increasing the amount of constructed space from 6.6 m<sup>2</sup> per person to 15.5 m<sup>2</sup> per person. Most units have adequate circulation patterns, although some units seem to devote too much space to corridors and halls.

63. In the Pingshan Road project, a 2,000-m<sup>2</sup> commercial market was built, and transferred to the local district authorities, for which the TREC received no funds. The actual amount of community facilities is regulated by the municipality, but apparently this is negotiable. In new areas, the amount of the project's constructed area that is to be devoted to community facilities is 7 percent. In the older areas, where most of the services exist, redevelopment projects negotiate with the local district officials.

64. The total cost of the Pingshan Road redevelopment project was Y 11,004,000. A detailed breakdown is provided in Table 10. In terms of total constructed area, the average cost is Y 324/m<sup>2</sup>. However, since a considerable portion of the site was returned to former residents as replacement housing (14,813 m<sup>2</sup>), total project costs needed to be spread over the marketable commodity housing (17,154 m<sup>2</sup>). As a result, the break-even sales price of the housing was Y 641/m<sup>2</sup>, about double the actual cost per m<sup>2</sup>.

#### K. Tianjin: Wujaiyao Project

65. Wujaiyao was also developed by the Tianjin Real Estate Development Corporation. Started in 1985, the project took approximately 1.3 years to complete. The Wujaiyao site is 3.35 hectares. Before redevelopment, there

Table 10: TIANJIN: PINGSHAN ROAD REDEVELOPMENT PROJECT

Site area (m <sup>2</sup> )	13,500
Total built area	33,987
Residential area	31,967
Marketable area	17,154

Construction costs	Cost (Yuan)	Cost/ site (m <sup>2</sup> )	Cost/ TCA (m <sup>2</sup> )	Cost/ RCA (m <sup>2</sup> )	Cost/ MRA (m <sup>2</sup> )
<b>Preconstruction</b>					
Relocation payments	162,000	12.00	4.77	5.07	9.44
Temporary rentals	82,000	6.07	2.41	2.57	4.78
Site preparation	29,000	2.15	0.85	0.91	1.69
Survey & design	63,000	4.67	1.85	1.97	3.67
On-site services	31,000	2.30	0.91	0.97	1.81
Fees & taxes	15,000	1.11	0.44	0.47	0.87
Subtotal	<u>382,000</u>	<u>28.30</u>	<u>11.24</u>	<u>11.95</u>	<u>22.27</u>
<b>Construction</b>					
Housing	8,710,000	645.19	256.27	272.47	507.75
Public facilities	50,000	3.70	1.47	1.56	2.91
Management fees	0	0.00	0.00	0.00	0.00
Contingencies	50,000	3.70	1.47	1.56	2.91
Interest	0	0.00	0.00	0.00	0.00
Subtotal	<u>8,810,000</u>	<u>652.59</u>	<u>259.22</u>	<u>275.60</u>	<u>513.58</u>
<b>Infrastructure</b>					
Water	100,000	15.11	6.00	6.38	11.89
Sewer & drainage	113,000	8.37	3.32	3.53	0.00
Gas	25,000	1.85	0.74	0.78	1.46
Electric	204,000	15.11	6.00	6.38	11.89
Roads	1,370,000	101.48	40.31	42.86	79.86
Other	0	0.00	0.00	0.00	0.00
Subtotal	<u>1,812,000</u>	<u>134.22</u>	<u>53.31</u>	<u>56.68</u>	<u>105.63</u>
<b>Total Cost</b>	<u>11,004,000</u>	<u>815.11</u>	<u>323.77</u>	<u>344.23</u>	<u>641.48</u>

TCA = Total Construction Area.

RCA = Residential Construction Area.

MRA = Marketable Residential Area.

were 15,715 m<sup>2</sup> of buildings, reflecting an FAR of 0.47. The site had 612 housing units and, like Pingshan Road, the structures were one-story unreinforced brick structures averaging less than 50 m<sup>2</sup> each. Based on an average household size of 4.7 persons, the project was home to 2,540 persons, with an average of 6.1 m<sup>2</sup> per capita. Housing contained no toilets and had only simple kitchen facilities. The site also contained a small factory and recycling center used for turning plastic scraps into usable products. There were no on-site community facilities.

66. The relocation process was generally the same as for Pingshan Road, and 700 households returned to Wujaiyao (actually, the 700 households come from 583 prior housing units, as 29 households did not return). Those that did move back paid the same rent per m<sup>2</sup> per month as before, despite the fact that they now live in a vastly improved environment. Rents paid per m<sup>2</sup> are about Y 0.2/m<sup>2</sup>/month, the same as for Pingshan Road.

67. Private housing owners received Y 105,089 in compensation for their old dwelling units, about Y 6.69/m<sup>2</sup> of preredevlopment constructed area. Total relocation payments to all tenants were Y 1,208,989, an average of Y 1,975/unit.

68. The redevelopment plan called for the construction of 61,319 m<sup>2</sup>. The Floor Area Ratio after redevelopment was 1.77, an increase of nearly three times. Of this amount, 59,319 m<sup>2</sup> was for housing and 2,000 m<sup>2</sup> was for community facilities. Of the 59,319 m<sup>2</sup> of housing, most, 39,697 m<sup>2</sup>, was for replacement housing.

69. The total cost of the redevelopment project was Y 23,744,00, an average of Y 387/m<sup>2</sup> of total constructed space (see Table 11 for a breakdown). However, since the replacement housing generates no revenue for the TREDC, the project's total costs must be recouped from the sale of commodity housing. For Wujaiyao, this meant that the commodity units had to be priced at Y 1,210/m<sup>2</sup>--over three times the actual cost of construction.

#### L. Baseline Simulation Case

70. In Chapter V, various simulations are presented to gauge the likely impacts of changes in relocation policies. These simulations are based on a common prototypical redevelopment case, which reflects characteristics common to most of the 11 projects outlined above.

71. The project has a site area of 50,000 m<sup>2</sup>. It had a preredevlopment constructed area of 40,000 m<sup>2</sup> (an FAR of 0.8). The site housed 1,086 households in a total residential constructed area of 38,000 m<sup>2</sup> (approximately 35 m<sup>2</sup>/unit). It also contained 2,000 m<sup>2</sup> of public facilities. The post-redevelopment simulation (baseline case) assumes that the site is redeveloped to an FAR of 2.0 and contains 100,000 m<sup>2</sup> of constructed space. Reflecting practices in many cities, the simulation assumes that all households are resettled on site and that each household receives an average of 50 m<sup>2</sup> of constructed area for a total area of 54,300 m<sup>2</sup>. Additional public facilities are constructed to reach 5,000 m<sup>2</sup>. After these allocations are made, there is an additional 40,700 m<sup>2</sup> of commodity space. Total average construction costs

Table 11: TIANJIN: WUJAIYAO PROJECT

Site area (m <sup>2</sup> )	33,500
Total built area	61,319
Residential area	59,319
Marketable area	19,622

Construction costs	Cost (Yuan)	Cost/ site (m <sup>2</sup> )	Cost/ TCA (m <sup>2</sup> )	Cost/ RCA (m <sup>2</sup> )	Cost/ MRA (m <sup>2</sup> )
<b>Preconstruction</b>					
Relocation payments	580,000	17.31	9.46	9.78	29.56
Temporary rentals	629,000	18.78	10.26	10.60	32.06
Site preparation	130,000	3.88	2.12	2.19	6.63
Survey & design	225,000	6.72	3.67	3.79	11.47
On-site services	1,000	0.03	0.02	0.02	0.05
Fees & taxes	102,000	3.04	1.66	1.72	5.20
Subtotal	<u>1,667,000</u>	<u>49.76</u>	<u>27.19</u>	<u>28.10</u>	<u>84.96</u>
<b>Construction</b>					
Housing	17,455,000	521.04	284.66	294.26	889.56
Public facilities	670,000	20.00	10.93	11.29	34.15
Management fees	201,000	6.00	3.28	3.39	10.24
Contingencies	100,000	2.99	1.63	1.69	5.10
Interest	0	0.00	0.00	0.00	0.00
Subtotal	<u>18,426,000</u>	<u>550.03</u>	<u>300.49</u>	<u>310.63</u>	<u>939.05</u>
<b>Infrastructure</b>					
Water	853,000	22.72	12.41	12.83	38.78
Sewer & drainage	39,000	1.16	0.64	0.66	0.00
Gas	646,000	19.28	10.54	10.89	32.92
Electric	761,000	22.72	12.41	12.83	38.78
Roads	406,000	12.12	6.62	6.84	20.69
Other	946,000	28.24	15.43	15.95	48.21
Subtotal	<u>3,651,000</u>	<u>108.99</u>	<u>59.54</u>	<u>61.55</u>	<u>186.07</u>
<b>Total Cost</b>	<u>23,744,000</u>	<u>708.78</u>	<u>387.22</u>	<u>400.28</u>	<u>1,210.07</u>

TCA = Total Construction Area.

RCA = Residential Construction Area.

MRA = Marketable Residential Area.

(both hard and soft costs) are assumed to average Y 1,000/m<sup>2</sup>. Table 12 provides a breakdown of the costs of the baseline redevelopment project.

**Table 12: BASELINE ASSUMPTIONS FOR SIMULATIONS**

New FAR	2.00
Site area (m <sup>2</sup> )	50,000
Total built area	100,000
Public facilities	5,000
Residential area	95,000
% On-site replacement	100%
On-site replacement	54,300
Commodity housing	40,700

Construction costs	Cost (Yuan)	Cost/ site (m <sup>2</sup> )	Cost/ TCA (m <sup>2</sup> )	Cost/ MCA (m <sup>2</sup> )
<b>Hard Costs</b>				
Commodity housing	28,490,000	569.80	284.90	700.00
Public facilities	2,250,000	45.00	22.50	55.28
Water	500,000	8.00	4.00	12.29
Sewer & drainage	300,000	6.00	3.00	7.37
Gas	300,000	6.00	3.00	7.37
Electric	400,000	8.00	4.00	9.83
Roads	250,000	5.00	2.50	6.14
Other	350,000	7.00	3.50	8.60
Subtotal	<u>32,840,000</u>	<u>656.80</u>	<u>328.40</u>	<u>806.88</u>
<b>Soft Costs</b>				
On-site relocation	38,010,000	760.20	380.10	933.91
Off-site relocation	0	0.00	0.00	0.00
Temporary rentals	781,920	15.64	7.82	19.21
Site preparation	250,000	5.00	2.50	6.14
Survey & design	300,000	6.00	3.00	7.37
On-site services	200,000	4.00	2.00	4.91
Fees & taxes	15,000,000	300.00	150.00	368.55
Management fee	3,058,367	61.17	30.58	75.14
Contingencies	4,926,000	98.52	49.26	121.03
Interest	4,728,960	94.58	47.29	116.19
Subtotal	<u>67,255,247</u>	<u>1,345.10</u>	<u>672.55</u>	<u>1,652.46</u>
<b>Total Cost</b>	<u>100,095,247</u>	<u>2,001.90</u>	<u>1,000.95</u>	<u>2,459.34</u>

TCA = Total Construction Area.

MCA = Marketable Construction Area.

CHINA

URBAN LAND MANAGEMENT: OPTIONS FOR AN EMERGING MARKET ECONOMY

Residential Relocation Policies in Selected Cities

A. Tianjin's Relocation Policies

1. Some Chinese cities, Tianjin in particular, have followed a policy which grants very favorable relocation rights to tenants of redevelopment projects. When the Tianjin REDC redeveloped its Pingshan Road and Wujiayao projects, all of the residents were granted rights to return to the new project. In the case of Pingshan Road, 253 households were temporarily resettled and then returned to the site. For Wujiayao, only 29 of 600 households elected not to return.
2. During the site clearance and redevelopment phase, households are provided with temporary relocation assistance. If they stay with relatives or friends, they receive a monthly allowance of between Y 15 and Y 30. If they are housed by the REDC, they receive no cash compensation unless they are housed in a remote location, and then they receive a transportation subsidy.
3. Upon project completion, the households are provided with new units. In the case of both Pingshan Road and Wujiayao, the physical condition of the new units is vastly superior to preredevelopment housing. The new housing has individual toilet and kitchen facilities and is constructed with better materials and finishes. While tenant living conditions are vastly improved through the upgrading of the quality of construction, each resettled household receives additional space. The construction area of a typical flat was increased from 34 m<sup>2</sup> to between 50 and 60 m<sup>2</sup>, so that households would be brought into alignment with the current living area standards promulgated by the Tianjin Urban and Rural Construction Commission.
4. Another facet of improved living conditions is the usual upgrading of public facilities. Most cities require that an additional 6 to 10 percent of the residential constructed area be developed for public facilities. In the older urban areas, there is usually far less space devoted to these activities and they obviously add to the quality of the new residential environment.
5. Despite the significant improvement in housing conditions and public facilities, the policy in Tianjin is to only marginally increase rents. In both projects, preredevelopment rents were extremely low, averaging about Y 0.2/m<sup>2</sup> of living area per month, an amount that does not even cover maintenance costs, let alone capital cost recovery. After redevelopment, rents were marginally increased from Y 0.20 to Y 0.25/m<sup>2</sup> of living area per month. While it is true that the increase in rents is 25 percent per m<sup>2</sup>, the absolute rent level is still well below the actual capital costs of the new units. In fact, at a construction cost of Y 333/m<sup>2</sup> of constructed area, the new rents are less than one tenth the required break-even rent per month to cover operating and capital costs.

6. In Tianjin and to a lesser extent in Hangzhou, redevelopment projects are structured to provide for the almost complete on-site resettlement of affected households. In both cities, very little attempt is made to encourage residents to locate to lower-cost suburban projects. The tendency is to interpret the property rights of the tenants to include the right to return to the site and to continue to pay the same low level of rent. As illustrated below, this policy is extremely expensive and burdensome. The World Bank's project work, however, is encouraging a new pattern of behavior to emerge (Box 1).

#### B. Relocation in Guangzhou's Jin Hua Project

7. In Guangzhou, redevelopment and relocation laws are strict and costly to follow. In the process of structuring the massive 29 hectare Jin Hua project, the REDC met with each and every household and negotiated with them a precise settlement in terms of temporary relocation, compensation, and the provision of a new unit. While the project is still under construction and will not be completed for at least another year, planners estimate that 6,712 of 7,492 households will be resettled on-site--90 percent. Each household will receive 13 m<sup>2</sup> of constructed area per person (8 m<sup>2</sup> of living area per capita). Households electing not to return to the area will be paid approximately Y 10,000 in compensation, an average of Y 227/m<sup>2</sup>.

8. All returning households will be allocated Y 400 for moving expenses. If they temporarily move in with relatives, they will receive Y 65 per person per month. If they are housed in other facilities, the redeveloper will pay the rent, plus an additional Y 12 per person per month. The developer expects that 50 percent of redevelopment site occupants will relocate with relatives and 50 percent will be housed in rented accommodations. Temporary relocation costs for the project are estimated to be Y 13,155,000, slightly less than Y 2,000 per resettled household.

9. The process of negotiation is especially difficult because there were essentially three kinds of housing accommodations on the 29 hectare site: approximately 2,400 units were owner-occupied; 2,400 units were publicly owned and managed (by the municipality) and 2,400 were owned by overseas Chinese.

10. Most owner-occupied private housing is very old, in poor condition and small--averaging 20 m<sup>2</sup>. Most units lack toilet and kitchen facilities. In line with government policy to improve housing conditions, redevelopment policies and practices call for the provision of at least 13 m<sup>2</sup> of constructed area per person. On average, each household in the redevelopment area is allocated 42 m<sup>2</sup> of living area. However, unlike the practices in Tianjin, private owners will have to pay for the additional space, being required to pay Y 650/m<sup>2</sup> for the additional 22 m<sup>2</sup> allocated per household). For those living in the public housing, the relocation compensation will be the same. All households will be provided with 13 m<sup>2</sup> per person, an amount that is close to what most households residing in new public housing have at present. For overseas Chinese, owners receive replacement housing, and then they pay for the additional space, provided at Y 650/m<sup>2</sup>. If the unit is rented to a third party and the owner wishes to take over the unit, the REDC will provide the tenant rental accommodation, usually in municipally managed units. This is

**Box 1: TIANJIN URBAN DEVELOPMENT PROJECT: INNOVATIVE RESETTLEMENT SCHEMES**

Many of the transport and drainage improvement components of the project serve dual purposes, not only to improve the particular subsector assets but also to improve land use and housing conditions in the central city areas. In particular, provision of better housing for the 4,046 households involved is one of the most important aspects of these investment components, consistent with Tianjin Municipal Government's (TMG) ongoing program of land use and housing improvements. Under the resettlement program, involving 17 hectares, the residents will move from the central city "pingfang" houses which are extremely crowded, dilapidated and lack kitchens or sanitary facilities to larger, adequately equipped ones in six new residential developments, on average about 4 km from current locations. Recognizing the importance of the housing improvement objectives, the project will support residential resettlement as an explicit component, while introducing improvements in resettlement procedures.

TMG has extensive experience in demolition and resettlement operations and has established effective regulatory and organizational arrangements. The displaced households receive new permanent housing units in compensation whose sizes are determined on the basis of the size of the housing they vacate and the household size and characteristics, according to well-established guidelines. Residents relocating under the project will get new housing which will be, on average, about 2.5 times the size of the old units, as well as small cash compensation for moving and other expenses. The new locations will, on average, be 4 km away from the original ones. While these arrangements have proven effective and well accepted by the resettling families, the existing practice of district governments allocating apartments for households does not allow residents freedom of choice nor foster competition among housing developers.

Under the project, TMG agreed to introduce new procedures to permit essentially market transactions for the new housing units, by allowing the resettling households to choose their new housing among a much larger number of apartments in six different locations offered by different housing companies, whose supply of units (7,200 apartments) far exceeds the number required by the relocating households. The transaction would be conducted through the use of resettlement vouchers bearing the value equivalent to the average cost of replacement housing of the size to which the relocating households would be entitled as determined under the standard practice. The households will be allowed to choose units that are more expensive than their voucher values, due to size or location, by making additional payments. On the other hand, they would also be allowed to choose smaller or otherwise less-expensive apartments than their entitlement and take cash compensation. However, these variations would be limited to within 20 percent of the voucher values. The verification procedures by the housing companies and the resident registration system would act as a check against outright transfer of the vouchers. TMG would redeem the vouchers tendered by the housing development companies and the IDA credit will be applied toward part of the construction cost of the new housing chosen by the resettling households.

The resettlement initiative has an added macrospatial advantage: at present, Tianjin's city center has very high residential population densities (500 to 700 persons per hectare), while densities in the Socialist suburbs, 3 km to 10 km away, drop off rapidly to 200 persons per hectare. An efficient land use strategy would call for high-density, high "value-added" uses in the city center, a densification of residential districts in the near suburbs, and a concentration of industrial jobs in the outer belts of the city. The project will promote all of these objectives, allowing commercial and institutional uses to grow in the city center; enabling the residential densification of the near suburbs, and improving overall access to jobs both in central and peripheral locations. The project's infrastructure components, unlike examples cited elsewhere, actually support this land use strategy, with transport, sewer, and drainage schemes appropriate for this new style city.

---

Source: Tianjin Urban Development and Environment Project (Report No. 10284-CHA), February 20, 1992.

the so-called two-for-one replacement problem when there is an overseas Chinese landlord.

### C. Relocation Policy in Shanghai

11. In Shanghai, relocation is governed by the Shanghai City Housing Demolishing and Relocation Administration Implementation Detailed Regulation, dated July 19, 1991. The regulation states that the actual terms of relocation are to be negotiated by the party carrying out the redevelopment project and the household or affected unit. The terms of what constitutes appropriate compensation should include the following: the population to be resettled; amount of compensation; area of house; location; process for transition; time period of relocation; responsibilities and remedies for nonperformance. Relocation policies are more stringent for public works projects than for residential redevelopment projects (Box 2).

#### Box 2: SHANGHAI: RELOCATION POLICIES FOR PUBLIC WORKS PROJECTS

In Shanghai's City Housing Demolishing and Relocation Administration Implementation Detailed Regulation, Chapter 5 sets out specific rules for demolition and relocation related to municipal infrastructure. Article 60 of the chapter states that demolition and relocation should be guided by the principle of "vacate land first, deal with dispute second." Those affected by infrastructure projects should submit to the need for the project and accept relocation. In the case of important projects, procedures pertaining to negotiations with affected parties can be suspended. Permission for demolition and relocation for important construction projects can be granted without negotiations between the municipal infrastructure agency and affected parties.

Compensation for such projects is less generous than for residential redevelopment. In the case of nonresidential uses, employees of collective-owned enterprises may receive up to one year's wages (based on last year's levels). State-owned enterprises receive no compensation for idling. No compensation is paid for public facilities such as police stands, traffic signals, trees, green spaces and firehouses that are demolished.

Nonresidential buildings that were financed through local budgets (including everyday service facilities, schools, hospitals) must be replaced (in-kind compensation) with the same space, without free upgrading. Temporary buildings should be provided. No compensation is to be paid to tenants of these locally financed nonresidential buildings. No compensation is to be made for building decorations that are more than two years old. Facility damage caused by relocation and reinstallation will not be compensated. Equipment rendered unusable is not compensated, and higher authorities are called on to finance purchase and upgrading of new equipment.

The same standards of compensation are to be used for residential replacement in terms of in-kind contributions. There is, however, no protracted negotiation over the level of compensation, and standards are followed.

---

Source: Shanghai Construction Commission.

12. In principle, compensation for demolition and relocation should be the exchange of property rights, one unit for another. The regulation states that the area in the exchange should be based on the building area of the demolished house. Depending on the ownership of the previous house, the terms and conditions of resettlement compensation will vary. In the case of privately owned housing, the owner will receive compensation. The owner of the old unit is to surrender his property right and land use certificate to the Land Bureau and, based on negotiations, will receive a new property right certificate for a new unit. The negotiations for new units is based on the floor area of the demolished unit, and is to consider the variation in quality and cost of construction. If the average constructed area per person of the

new unit offered to the affected household is below 24 m<sup>2</sup> per person, and if the new unit is smaller than the old unit, the new units are to be sold to the resettled household at one third the costs of the new construction, less the value of the old unit. If the new unit provides more than 24 m<sup>2</sup> per person but is still smaller than the demolished unit, the affected household must pay the full cost of the new unit which is above the 24 m<sup>2</sup> per person threshold. If the affected household still has housing difficulties (crowding), they can purchase additional space at full cost. The affected household can get ownership of the new unit only after the full price differential has been paid. Certificates of occupancy are obtained from district and county housing registration offices.

13. The law provides the option for private owners to relinquish their property rights and move into municipal housing. In such cases, the REDC will provide compensation to the household based on an evaluation of the demolished unit. If the household relinquishes its housing rights and does not request any form of housing, they will receive 150 percent of the set compensation for the loss of the unit. In the case of publicly owned properties, the law calls for the exchange of property rights. For nonresidential public properties, no compensation needs to be made if the redeveloper provides new facilities of the same nature and character and the resettled party is provided with new property rights for the use of the new facility. Previous rental relationships are to be maintained. In effect, the law does not provide for increases in rental payments for the new, and usually improved rental accommodations.

14. A major difficulty arises in cases where private owners rent their units to other households. Shanghai's Demolishing and Relocation Law provides for the resettlement and compensation of both landlord and tenant. If a landlord rents the entire unit and does not wish to maintain property rights, he is entitled to receive compensation and tenants should be resettled. This policy is particularly taxing to real estate developers since they end up having to provide two new units for each one unit demolished. In Guangzhou, where a significant portion of the inner-city housing stock is owned by overseas Chinese, this two-for-one compensation is common in redevelopment projects.

15. In cases where the landlord rents out part of the unit and lives in the other, and is willing to relinquish property right of the rented part, he will receive compensation for the part relinquished and the tenant will be relocated. If the landlord wishes to keep all property rights, the relationship between landlord and tenant should be maintained, and a new lease executed between the parties, which is in conformity with Shanghai Regulation for Renting of Private Houses.

16. Overall, in most cities in China, the occupants of redevelopment project area housing enjoy extremely secure and substantial property rights. In most cases, private owners of housing are provided with replacement housing that is vastly superior to their original units. Enterprise and municipal landlords receive the same treatment and are provided with new units without having to pay for them. The cost of such in-kind compensation is considerable.

#### D. Cash Versus In-Kind Compensation for Demolished Housing

17. While in-kind compensation is normally the rule, demolition and relocation regulations specify procedures and standards for payment of compensation. In most instances, the level of compensation paid for a building is based on the materials used to construct the structure, less some estimate of depreciation for age and condition. Table 1 presents residential compensation ranges for various types of structures in Tianjin and Fuzhou.

Table 1: FUZHOU AND TIANJIN REDEVELOPMENT COMPENSATION SCHEDULES

City	Building material	Depreciated value (%)	Compensation (Y/m <sup>2</sup> )
Fuzhou	High-quality concrete and brick	80	320
	High-quality concrete and brick	50	200
	High-quality concrete and brick	20	80
	Medium-quality brick	80	208
	Medium-quality brick	50	130
	Medium-quality brick	20	52
Tianjin	Steel and concrete		267-413
	Brick and concrete		187-333
	Brick and wood		158-351
	Simple		85- 99

Source: Redevelopment project surveys, 1989, 1992.

18. Apparently these schedules are indicative and the actual level of compensation varies, subject to negotiation over the building condition. For example, in the Jin Hua project, the payment of Y 227/m<sup>2</sup> is probably well above the depreciated value of the old private structures. However, the mechanism most often used to compensate for the loss of property is in-kind replacement. In Tianjin, for example, sitting tenants are provided with units in new redevelopment projects and, therefore, neither they nor their landlord (the municipality, an enterprise or a private property-owner) receive any cash contribution. In situations where sitting tenants receive new units, the level of compensation typically exceeds the actual value of the property taken through the redevelopment process. In the case of Pingshan Road and Wujiayao, the actual construction cost of the project, is Y 324 and Y 387, respectively, as compared to the residential schedule for compensation for brick and wood structures of between Y 158 and Y 351/m<sup>2</sup>. Since the age and physical conditions of housing in both of these redevelopment areas was quite poor, the lower end of the range is assuredly the most applicable. This suggests that the level of compensation provided by the direct replacement of housing units exceeds what is required by statute.

19. The degree to which in-kind compensation of housing and property located in redevelopment areas exceeds the actual value of the demolished property obviously depends on the cost of producing the replacement units.

Unless there is careful financial account of these costs, it is only by chance that there is some equivalence. Such an approach is followed in Fuzhou. In Fuzhou, as will be more fully elaborated below, all redevelopment project housing is commodity housing, and all purchasers must pay the commodity price. Sitting tenants of old areas to be redeveloped are compensated for the loss of their unit. This means that the various owners of rental properties--the municipality, enterprises and private individuals--receive compensation for units, according to the type of construction and conditions. As presented in Table 1, medium-quality brick structures are assessed at Y 260/m<sup>2</sup>, and high-quality concrete and brick units are scheduled at Y 400/m<sup>2</sup>. Depending on the age of the building and its condition, these assessments are reduced for depreciation.

20. The Fuzhou approach is novel and it merits serious consideration by other urban and rural construction commissions. It establishes a mechanism for decoupling the compensation for taking properties from the provision of new housing units. Such an approach makes the financial aspects of compensation for taken property more transparent. Another very important implication of the Fuzhou approach is that it shifts the burden of rent reform from the real estate developer onto the owner of the properties. In cases where redevelopment properties are owned by municipalities or enterprises, they must directly confront the financial implications of continuing to offer low rents to tenants after redevelopment.

21. The financial implications of in-kind contributions are enormous and greatly determine the financial feasibility of redevelopment projects. Because of the emphasis on in-kind contributions and the concept of exchanging property rights as opposed to financial compensation, resettlement and relocation payments are biased heavily in favor of the sitting tenant. Instead of structuring redevelopment and relocation benefits around the concept of in-kind compensation, it is far more efficient to provide financial compensation. A vast economics literature reporting on research on the value housing concludes that housing is best viewed as a bundle of services provided to the user. This flow of services includes areas for sleeping, entertaining and socializing, food preparation and storage, personal hygiene, and storage. The services also include access to employment, family, friends, shops and governmental and institutional activities. Given the complexity and extreme variation in levels of service exhibited by these physical and nonphysical attributes, it is clear that dwelling size alone is not the best measure of housing services.

22. Accordingly, demolishing and relocation policies should not be based only on the physical size of the unit. The proper method of compensation should be based on the current economic value of the unit. The evaluation should be based on estimates of the costs to physically reproduce the unit, given current construction cost, taking into account the material and technology used to build it. This estimate should be reduced for depreciation. Assuming that residential owners should receive no compensation for land, payment should be made for housing based on its replacement cost less depreciation, with the same levels of payment made to private owners, enterprises and government. For enterprise- and government-owned units, replacement housing will need to be acquired in specific projects, and it should be the responsibility of the redeveloper to assist government or enterprises in find-

ing suitable replacement units. Private owners should be free to purchase replacement units in any one of a variety of projects, taking into consideration access to jobs, family and other services.

23. Table 2 provides estimates of the depreciated value of old dwelling units, the actual construction costs of the replacement units (excluding land or infrastructure costs) and the net differences between the two costs, taking into consideration changes in the size of the new unit provided to the tenant. As the table illustrates, the typical cost of the old housing unit (assuming an average depreciated value of Y 200/m<sup>2</sup>, which reflects the range of values presented in Table 1 above and discussions with numerous real estate developers) ranges from Y 3,000 to Y 12,000. Based on new construction costs, new units provided to resettled households range from Y 16,048 to Y 71,050. In some cases, the value of the new unit is nearly four times greater than the value of the unit replaced. In the case with the smallest ratio, Jin Hua, new units cost nearly 50 percent more than the old ones, despite the fact that the new units are smaller.

**Table 2: COMPARISON OF THE ECONOMIC VALUE OF OLD DWELLING UNITS AND NEW IN-KIND REPLACEMENT UNITS**

Project	Households	Housing size		Value	Value	Ratio Old/ New
		Original (m <sup>2</sup> )	New (m <sup>2</sup> )	Old Unit /a (Yuan)	Replaced Unit (Yuan)	
An Deng	108	60	85	12,000	26,010	2.17
Jin Hua	7,492	44	42	8,800	12,852	1.46
Xiao Fuqing	120	50	79	10,000	24,174	2.42
Jian Guo	1,394	15	60	3,000	18,360	6.12
Hu Lang	553	14	48	2,800	14,688	5.25
Hui Yi	264	30	49	6,000	14,994	2.50
Ordinary	3,620	28	55	5,600	16,830	3.01
Tian He	204	60	83	12,000	25,398	2.12
Ying Xiang	1,400	22	71	4,400	21,726	4.94
Pingshan	253	35	59	7,000	18,054	2.58
Wujiayao	612	26	57	5,200	17,442	3.35

/a The economic value of the old unit is based on an estimated value of Y 200/m<sup>2</sup> of constructed area. The economic value of the new unit is based on the actual construction cost of the housing and excludes costs for land, infrastructure and fees and charges.

Source: Redevelopment Project Surveys, 1991, 1992.

24. While the policies and procedures of the exchange of property rights are based on the notion of replacing a tenant's use rights, in-kind compensation actually provides the tenants with much more. Even though tenants do not own the land on which their apartment sits, they are, in fact, receiving some of the development gain generated by the site's redevelopment. The cumulative

effect of making these substantial in-kind payments results in high relocation costs. Table 3 illustrates the total in-kind compensation costs for the surveyed projects, and the percentage these costs are of total project redevelopment costs. The costs associated with merely replacing the demolished housing is considerable, ranging from 18 to up to nearly 70 percent of the total cost of redevelopment. An alternative approach would be to credit owners the value of the demolished unit and let them either apply the credit to the purchase of a new unit constructed on the site or use the credit to purchase another units elsewhere. This approach as been adopted in Fuzhou.

**Table 3: TOTAL REDEVELOPMENT AND RESETTLEMENT COSTS**

Project name	Original house-holds	Total relocation cost (Yuan)	Total project cost (Yuan)	Relocation as a % of total cost
An Deng	108	2,809,080	8,025,000	35.00
Jin Hua	7,492	125,865,600	741,224,028	16.98
Xiao Fuqing	120	2,559,600	6,992,956	36.60
Jian Guo	1,394	89,076,600	265,209,200	33.59
Hu Lang	553	30,525,600	186,332,000	16.38
Hui Yi	264	18,757,200	46,291,500	40.52
Ordinary	3,620	179,190,000	257,470,000	69.60
Tian He	204	6,349,500	14,619,093	43.43
Ying Xiang	1,400	34,094,200	153,458,000	22.22
Pingshan	253	4,060,144	11,002,948	36.90
Wujiayao	612	10,255,896	23,742,829	43.20

Source: Redevelopment Project Surveys, 1991, 1992.

#### E. Fuzhou's Compensation Approach

25. The case of Fuzhou is important in that it provides a useful model for structuring a market-based system of redevelopment compensation. In Fuzhou, redevelopment is market-driven: REDCs find sites for redevelopment and negotiate with occupants for acquisition. Based on the site and the current market conditions, the REDC prepares a development proposal for the site.

26. Virtually all of the redevelopment activity in Fuzhou is for the construction of commodity housing. None of the former residents are relocated to the site. In theory, households and businesses located in redevelopment areas have two options: (i) they can cash out and move to a new area, or (ii) they can cash out and purchase a new unit in the completed redevelopment project, should there be available housing units. The ultimate owners of the new units must pay the going rate for them.

27. Sitting tenants in redevelopment areas are compensated for the demolition of their units. Private tenants receive payment according to the type of construction of the unit (concrete and brick, brick or wood), the age of

the unit and its condition. At the present time, high-quality concrete and brick units in excellent condition are compensated at Y 320/m<sup>2</sup>, reflecting a value of 80 percent of the current replacement cost (see Table 1 for current compensation levels in Fuzhou). The actual amount of compensation is negotiated between the REDC and the tenant. The REDCs negotiate directly with private owners and payments go to them. In the case of units owned by enterprises or the municipality, negotiations are with the owner, not the tenant, and the payments go to the owner. After resettlement, the enterprises are free to set new rents. In most cases, these new rents increase to reflect the higher costs of the units. For municipally owned units, the developer negotiates with the government over the level of compensation. Rental rates for the tenants usually remain the same on a per m<sup>2</sup> basis.

28. Affected tenants who were private owners can choose to relocate to other housing projects, using their compensation. They can purchase larger units if their prior space standards were below government-set targets. However, to encourage relocation, tenants going to suburban areas can also purchase up to 40 percent more space (even if it exceeds policy levels). The actual amount of the bonus varies according to the location of the suburban project (the more remote, the higher the bonus) and the site of the former house. Six zones are used to set the bonus system.

29. In the case of tenants living in enterprise housing that is to be redeveloped, the enterprise makes the decision on whether to resettle, presumably in consultation with their worker/tenants. Here, the enterprises are also eligible to obtain "bonus" space if they agree to relocate their workers to suburban projects. In the case of municipally owned housing, the government purchases additional units and relocates tenants, offering them limited choices. These tenants will also get more space, as an inducement to move to less accessible suburban areas. The rents paid by the tenants living in municipally owned buildings do not increase after redevelopment.

30. Regardless of the type of tenant, if redevelopment area occupants choose to return to the site after completion of the project, they will not be able to purchase "bonus" space. They will, however, be able to acquire some additional space if their per capita living space was below municipal targets. Currently, the typical price paid by the returning residents is on the order of Y 305/m<sup>2</sup> of construction for brick buildings and Y 365/m<sup>2</sup> for concrete and steel (high-rise) buildings.

31. The actual prices for the commodity housing are the subject of negotiation between the developer and the Fuzhou Housing Administration. Similar negotiations take place between the developer and the sitting tenants over the price to be paid for the units to be demolished. In cases where negotiations between sitting tenants and REDCs break down, the government can insist on and force tenants to relocate. This apparently does not happen very often. If the compensation for replacement housing provided in redevelopment projects was modeled on the principles followed in Fuzhou, redevelopment project cost savings would be substantial.

F. On-Site and Off-Site Replacement of Demolished Housing

32. The second most important determinant of the costs of housing compensation is whether affected households are provided with on-site replacement. Clearly, in the context of in-kind compensation and the notion of the exchange of use rights, many argue that tenants of demolished housing should be provided with new housing built on the redevelopment site. Such an approach makes it difficult to feasibly build new projects, since so much of the new construction is diverted to former tenants at no cost. In this section, we review the various policies taken in several cities in regards to on-site replacement housing.

33. In Tianjin, Guangzhou and Hangzhou, policies support and encourage the on-site resettlement of redevelopment-area households. Four of the 11 projects we surveyed provided 100 percent on-site relocation of households. Another three projects provided on-site replacement of demolished units for over 85 percent of households. Only four cases called for substantial off-site resettlement. In one case, this was because the site was used for a park (An Deng in Fuzhou). In the other three cases, new projects were developed which made it difficult to rehouse everyone on-site. The incidence of on-site redevelopment is a critical determinant of redevelopment feasibility because of the following reasons:

- (a) all redevelopment projects are financed through the sale of new commodity housing and commercial space produced on the site;
- (b) most redevelopment policies provide for the in-kind replacement of demolished housing with no payments provided from the existing owners;
- (c) redevelopment projects are constrained by limitations on increases in FAR and, as a result, the total floor area that can be constructed in a redevelopment project is limited;
- (d) redevelopment projects are required to build and transfer substantial new public facilities at no cost to local and district governments; and
- (e) most replacement housing has more constructed area per unit than originally existed on the site.

34. If affected households were compensated with cash for the demolition of their units and were then permitted to purchase commodity housing on-site, REDCs would be indifferent to on-site relocation. However, as has been described above, replacement units are provided at no cost to these tenants and this imposes substantial costs on the redeveloper.

35. With limitations on the potential floor area that can be constructed, requirements for new public facilities and increased living areas for occupants of replacement housing, the potential amount of commodity housing or space is limited. As a result, the break-even price of the commodity housing is frequently very high, and REDCs have difficulty selling space. In 9 of 11 cases, new development on the cleared sites occurred at higher densi-

ties. Despite efforts by planners to hold back development densities in inner-city areas, the average FAR for the 10 projects increased from 1.11 and 2.79, a 150 percent increase. In terms of constructed area, these 10 projects increased from an average of 57,581 m<sup>2</sup> to 156,037 m<sup>2</sup>. Thus, on average, each redevelopment project provided an additional 98,456 m<sup>2</sup> of space.

36. However, not all of the additional space was marketable. In the new redevelopment projects, where nearly all former residents were relocated on-site, a substantial amount of the additional space was allocated to these households. Table 4 illustrates the prior and replacement housing construction levels for seven projects which resettled more than 85 percent of the residents on site. Before redevelopment, the seven projects had 501,547 m<sup>2</sup> of residential space, an average of 71,650 m<sup>2</sup> per project. There were 14,050 households living on-site, and each had an average of 35.7 m<sup>2</sup> of constructed space. With redevelopment came the construction of 630,540 m<sup>2</sup> of on-site residential replacement housing, an average of 90,077 m<sup>2</sup> per project. After redevelopment, 12,742 households returned to the seven projects, an average of 91 percent. Each household received 49.5 m<sup>2</sup> of constructed area.

**Table 4: PREVIOUS AND NEW ON-SITE REPLACEMENT HOUSING IN SEVEN REDEVELOPMENT PROJECTS WITH OVER 85 PERCENT ON-SITE RESETTLEMENT**

Project name	Previous residential constructed area (m <sup>2</sup> )	Average unit size (m <sup>2</sup> )	On-site replaced housing (units)	Average unit size (m <sup>2</sup> )	On-site replacement as a percent of total construction (%)
Jin Hua	329,648	44	282,000	42	38.3
Xiao Fuqing	6,000	50	9,530	79	61.8
Hu Lang	7,809	14	26,500	48	31.5
Ordinary Citizen	103,040	28	178,000	55	54.5
Ying Xiang	30,800	22	80,000	71	42.1
Pingshan	8,756	35	14,813	59	43.6
Wujiayao	15,494	26	39,697	57	64.7

Source: Redevelopment Project Surveys, 1991, 1992.

37. In all but one project, households received considerably more housing space, as the redevelopment planners endeavored to increase living space in inner-city areas to policy standards for per capita minimums. In some cases, space per dwelling unit more than doubled. This substantial increase in the size of on-site replacement units averages 18,437 m<sup>2</sup> per project. For the seven projects, the total constructed area was increased from 527,100 to 1,446,723 m<sup>2</sup>, a gain of 919,623 m<sup>2</sup>. Of the gain, approximately 130,000 m<sup>2</sup>, 14 percent, went to increasing the size of the replacement units.

38. In addition to using a portion of the net increase in redevelopment constructed area to increase the average size of replacement housing, real

estate projects are frequently required to provide space for community facilities at no cost. Table 5 tabulates the net increase in total constructed area, constructed area for increasing the size of replacement housing and constructed area for public facilities. These tabulations illustrate that not all of the incremental space provided through redevelopment actually can be sold as commodity housing. As it illustrates, only between 43 and 71 percent of the marginal increase in floor area can be sold as commodity housing. Only in the case of Guangzhou's Jin Hua project, where replacement housing units are smaller than original units, was a high level of net new construction devoted to commodity housing.

**Table 5: BREAKDOWN OF NET NEW CONSTRUCTED SPACE IN DEVELOPMENT PROJECTS**

Project name	Net increase constructed area (m <sup>2</sup> )	Increase size of replaced housing (m <sup>2</sup> )	Provide additional public facilities (m <sup>2</sup> )	Net area commodity sales (m <sup>2</sup> )	Percent of net increase (%)
<b><u>Projects with High On-Site Resettlement</u></b>					
Jin Hua	402,000	-47,648	163,648	286,000	71.1
Xiao Fuqing	9,417	3,530	1,402	4,485	47.6
Hu Lang	71,411	18,691	7,500	45,220	63.3
Ordinary Citizen	208,960	74,960	36,000	98,000	46.7
Ying Xiang	157,000	49,200	17,000	90,800	57.8
Pingshan	25,231	6,057	2,020	17,154	68.0
Wujiayao	45,604	24,203	2,000	19,401	42.5
<b><u>Projects with Low On-Site Resettlement</u></b>					
Jian Guo	62,179	0	4,300	57,879	93.1
Hui Yi	-380	0	0	-380	-
Tian He	3,320	-4,600	0	7,920	138.6

Source: Redevelopment Project Surveys, 1991, 1992.

39. On-site replacement housing can account for significant portion of the net increase in total construction. In the seven surveyed projects with over 85 percent of the households were resettled on-site, replacement housing accounted for between 32 and 62 percent of total new construction. Devoting one to two thirds of a redevelopment project constructed area to replacement housing, for which no revenues are generated, imposes a serious financial drag on project feasibility. On the other hand, when the replacement housing is provided off-site, the portion of net new construction going to commodity housing is much greater and can routinely exceed 100 percent of net new construction.

40. If these replacement units could be sold as commodity housing, considerable revenues could be generated. As long as the revenues generated per

square meter from the sale of commodity housing exceed the per meter cost of off-site replacement housing, REDCs would benefit from resettling project-area residents to new areas. There is widespread awareness of the cost implications of guaranteeing on-site replacement housing. In some cities, such as Chengdu, policies have been adopted which require all residents of redevelopment projects to be relocated to suburban areas. There, virtually all residents of redevelopment areas are required to relocate to new areas. Before 1991, Chengdu private-owner households were allocated the same amount of space as previously held and made no payment. Starting in 1991, these households were required to pay a differential of between Y 30 and Y 100/m<sup>2</sup> of constructed area, which reflects to differential between the cost of the new unit and the value of the old. This policy is similar to that used in Fuzhou. If they desire, private owners can purchase additional living space by paying the actual construction cost of the additional space. In the case of public rental housing, the municipality makes no additional payments for the replacement housing assigned to it by the REDCs. Rents for units, in new buildings remain at the same level as before, and currently average Y 0.13/m<sup>2</sup> per month.

41. While policies of mandatory off-site relocation might work in small- and medium-sized cities where impacts of relocation on trip patterns is likely to be small, in the larger cities it may not be politically feasible. Instead, there is apparently a trend towards providing a variety of space and financial inducements to encourage redevelopment-area households to relocate to suburban areas. Recognizing the special difficulties of redeveloping old areas, Shanghai's new relocation law provides for a differential payment for new housing constructed in redevelopment areas. In cases where commercial housing is to be developed on the cleared site, former users may purchase housing there, but they must pay a differential rent or price which reflects the cost differential between housing provided on the fringe of the city and the actual cost of the new commercial housing. Table 6 provides a breakdown of the differential rent "surcharges" for the seven delimited zones in Shanghai.

**Table 6: SHANGHAI'S DIFFERENTIAL RENT SURCHARGES**  
(Applied to the Sales of Commodity Housing)

Zone	Percent Increase
1	50
2	45
3	30
4	15
5	10
6	5
7	0

Source: Mission interviews, August 1991.

42. Another mechanism to facilitate the relocation of households to outlying areas is the stipulation in the act that regulates the amount of

space that can be allocated to resettled households, providing more space to those who agree to resettle outside of the city center. In either case, the amount of space allocated to residents of former slum areas is reduced. The justification for this policy is that the new housing units are better equipped with private toilets and kitchens (which are not included in the calculation of living area), and that the quality of construction is better.<sup>1/</sup>

43. Table 7 illustrates Shanghai's allocation standards. In addition to the standards outlined in the table, households choosing to locate in one of Shanghai's several new towns would receive an additional one to two square meters per person of living area. While the intent of the law is commendable, reflecting the increased quality of construction and the provision of toilets and kitchens, the allocation differential between central and fringe space allocations is not pronounced enough to provide sufficient incentives for relocation. It is analogous to asking a New Yorker to choose between 5 m in Manhattan or 6 m in Queens, or maybe 7 m in Jersey City--the differential is not likely to alter people's tendencies toward central locations, especially given transit congestion.

Table 7: SHANGHAI STANDARDS FOR THE REPLACEMENT OF DEMOLISHED HOUSING

Original living area (m <sup>2</sup> /person)	Living area allocations (m <sup>2</sup> /person) if	
	Resettle on or near site	Resettle to fringe
under 4	maintain previous amount	4
4- 7	4- 5	5- 6
7-10	5- 6	6- 7
10-13	6- 7	7- 8
13-16	7- 8	8- 9
16-19	8- 9	9-10
19-22	9-10	10-11
22-25	10-11	11-12
25-30	11-12	12
30+	12	12

Source: Shanghai City Housing Demolishing and Relocation Administration Detailed Implementation Regulation, July 19, 1991.

44. In Beijing, redevelopment companies have been experimenting with price and space incentives to encourage sitting tenants to relocate to less costly suburban projects. Three recent redevelopment projects in Beijing, De Bao, Ju'er Lane, and Xiau Hau, are experimenting with incentives to encourage relocation. Households wishing to purchase a unit will pay lower prices in

<sup>1/</sup> None of the Shanghai redevelopment cases examined in this study provided on-site resettled households with less space. In Guangzhou's Jin Hua project, the amount of space allocated to returning residents declined from an average of 44 to 42 m<sup>2</sup>.

suburban projects. If they wish to continue leasing housing, they will be required to pay the full cost of maintenance, either by paying more for rent or by paying a rent deposit. Since the rental rates and maintenance costs are considerably lower in suburban projects, Beijing planners anticipate that more redevelopment households will opt for suburban areas.

45. While initiatives aimed at providing incentives to households who choose to relocate to suburban areas should be encouraged, a major overhaul of the compensation framework is needed. It would be vastly easier for redevelopment corporations to compensate existing tenants for the depreciated value of their units and then require them to pay the full commodity price of new units developed on the cleared site. This policy should be applied to all classes of property ownership: municipal, enterprise and private. The last section of this report looks at the financial performance of redevelopment projects and assesses alternative strategies for improving project feasibility.

CHINA

URBAN LAND MANAGEMENT: OPTIONS FOR AN EMERGING MARKET ECONOMY

Institutional Structure of Land Administration 1/

A. Introduction

1. Like the administrative structure for the urban sector as a whole, the organization of land administration in China is also very complicated, and is shown in Figure 1. The land administration institutions can be divided into two layers; one involves the central state-level apparatus, operating directly under the State Council. The other involves the relevant departments at both the provincial and municipal government levels. In terms of land administration, the more direct control belongs to the municipal governments and their functioning departments.

B. State-Level Organizations

State Planning Commission

2. The State Planning Commission (SPC) was founded in June 1988 through the amalgamation of the former State Planning and State Economic Commissions. It operates as a large comprehensive management agency in charge of national economies and social development. Although it has much less involvement in actual land administration, its department of comprehensive development and state land use planning is responsible for providing macro-level policy guidance on land resources development and utilization, planning regional distribution of productive forces, determining the location of large-scale industry, and analyzing its effect on land resources. Since it still controls much of the state investment budget and planned materials supply, and since only approved projects will receive land allocations, its impacts on the land administration is important.

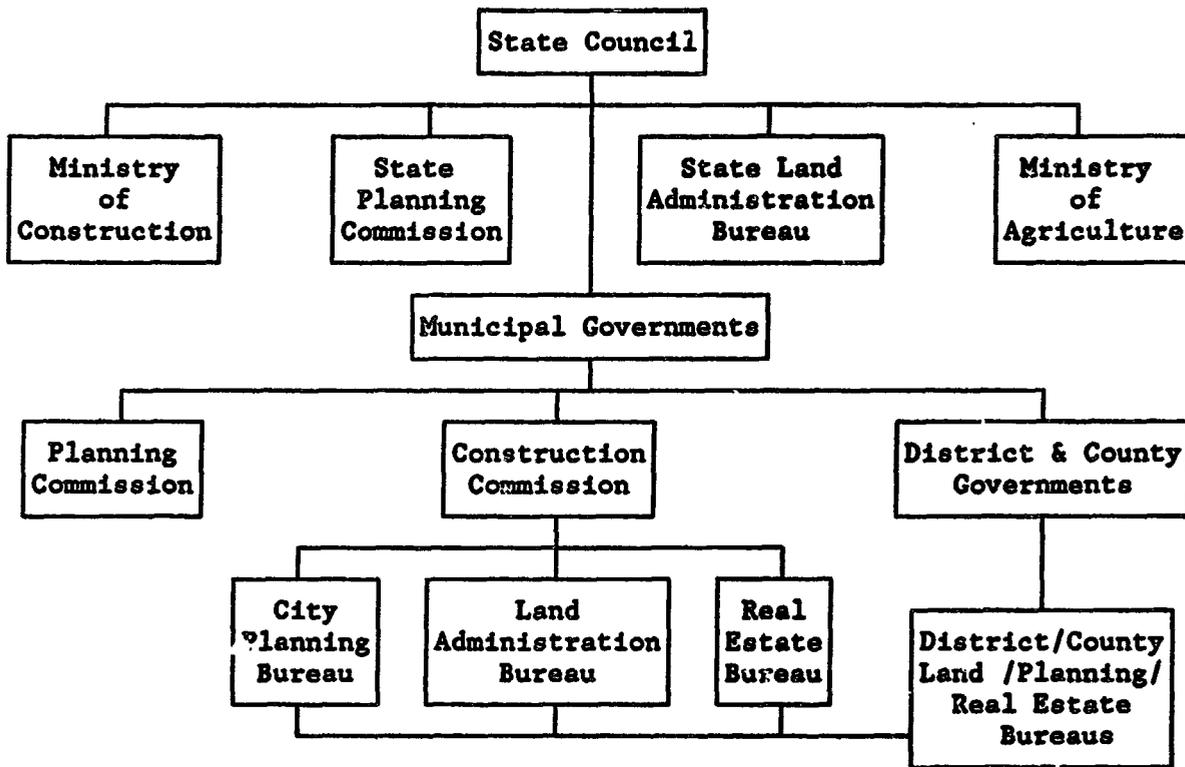
State Land Administration

3. The State Land Administration (SLA) was set up in August 1986 in order to provide overall management of urban and rural land administration. Its main functions is to take overall responsibility of executing the laws, regulations and policies on land administration; conducting land surveys, registration and statistics; and preparing the country's comprehensive planning of land use. In addition, it is also responsible for administering the national land expropriation and appropriation of agricultural land; inspect-

---

1/ Most of the descriptive materials are based on Cai Qiang and Cai Jiliang, The Current Situation and Development of China's Real Estate Sector 1989, Economic Research Institute, Ministry of Construction (in Chinese); J. Ratcliffe, S. Tsui, and H. Yu, 1990, Land Management in the People's Republic of China, Department of Building Surveying, Hong Kong Polytechnic; and information collected during the sector missions.

**Figure 1: ORGANIZATION OF AUTHORITIES RELATED TO LAND ADMINISTRATION**



ing, supervising, and resolving disputes involving land use in different places and between different departments; and investigating and prosecuting illegal land use cases. SLA and its local departments is the most active institution in addressing various land administration issues.

4. Under the Bureau there are six departments, two offices and three academic or professional institutes: Department of Land-Use Planning; Department of Cadastral Management; Department of Management on Land Use for Construction; Department of Supervision; Department of Science, Technology, Publicity and Education; Department of Policies and Law. General Office; Foreign Affairs Office; China Land Surveying and Planning Institute; Council of China Land Society; and China Land Economy Research Association.

**Ministry of Construction**

5. Ministry of Construction (MoC) was set up in 1987 to replace the Ministry of Urban and Rural Construction and Environment Protection. The main task of MoC is to be responsible for the overall administration of the nation's construction work, including civil engineering, urban and rural development, the building industry, and the real estate industry. Its main objective is to turn the building industry into one of the mainstays of national economy. MoC is a much larger and diversified than SLA. It has 15 bureaus, departments or associations. They include: Real Estate Administration; Urban Planning; Urban Construction; Construction Administration;

Designing Administration; Rural Development; International Cooperation; Construction Supervision; Scientific and Technology Development Administration; Laws and Regulations; Standards, Norms Administration; Overall Planning for Financial Affairs; Qualified Personal Development; China Urban Housing Research Association; and China Real Estate Association. In addition, there are also some corporations and research institutions under the direction of MoC: China Building Technology Development Center (CBTDC); China Academy of Building Research (CABR); China Academy of Urban Planning and Design (CAUPD); China State Housing and Real Estate Development Company (CSHREDC); and China State Construction Engineering Company (CSCEC).

6. In terms of land administration, the more relevant departments are the Department of Urban Planning and the Department of Real Estate Administration. The main functions of the Department of Urban Planning include developing planning guidelines; supervising the implementation of urban development plans; planning and administering urban construction and land use; and participating in feasibility studies of large construction projects that will greatly affect city development.<sup>2/</sup> The Department of Real Estate Administration is mainly responsible for administering the national real estate industry.

#### Ministry of Agriculture

7. The Ministry is responsible for regional agricultural planning administration. Currently, its role in land management is small compared with the three state organizations discussed above. Before the creation of SLA, the Agricultural Commissions at the provincial and municipal levels used to control vast rural areas within both the city proper and in suburban counties, which created many conflicts with local urban construction administrations.

#### C. Local-Level Institutions

8. At the provincial and autonomous regional level, real estate administration is the job of relevant construction commissions and the land administration bureaus. Their functions correspond to those of Ministry of Construction and State Land Administration Bureau.

9. At the city level, urban-rural construction commissions, real estate administration bureaus, city planning bureaus and land administration bureaus are all responsible for land and real estate administration. The city's construction commission, which is directly under the mayor, is the main institution in charge of urban construction matters. While those relevant bureaus such as city planning, real estate administration, and land administration are all under the leadership of construction commission.

---

<sup>2/</sup> Both MoC and SLA claim responsibility for managing and planning urban land use; this causes continuous conflicts between these two departments and their local counterparts. A recently issued State Council Decree (No. 31, 1990) was designed to finally resolve this issue (see para. 13).

Land Administration Bureau

10. The municipal land administration bureau mirrors the SLA and acts as its executive arm in relation to the overall administration of land within its own administrative area. It is responsible for land title registration, land requisition approval, and land use rights transfer administration, as well as the collection of land use taxes and fees.

City Planning Bureau

11. The city planning bureau is responsible of drafting and executing the city master plan, approving land use proposals for state construction, project designs, and the issuance of state construction land use permits within the urban planning area, as well as acting as an administrative authority for urban planning and building design at local level.

Real Estate Administration Bureau (REAB)

12. Its responsibilities include: executing policies of the national Department of Real Estate Administration; controlling the public housing stock; collecting rent and maintaining public properties; administering the transfer of use rights for public buildings; allocating new public housing to enterprises and individuals; selling public housing to individuals; registering the building stock in the urban area; as well as administering the urban demolition and relocation process.

13. Since the actual control over land and real estate affairs rest at municipal level, institutional arrangements at the city level are very complicated; and conflicts among different bureaus or departments often occur. Among these, perhaps the most visible conflict is over the issue of urban land management, where all three departments claim certain kinds of control. Both the No. 31 Decree of the State Council in 1990, and newly approved the City Planning Law of the People's Republic of China (May 1990) have, in principle, clarified the different roles of these three agencies in regard with urban land administration. According to these documents, the city planning bureau is responsible for approving the size and location of the land uses for any projects within the city planned area, and issuing state construction land use permits. The land administration bureau is responsible for handling various land administration issues, including the actual land requisition process, land titles registration, land use rights transfers and so on. And the real estate administration bureau is responsible for managing the existing building

stock, arranging building registration, and supervising real estate activities, as well as overseeing urban demolition and relocation process.<sup>3/</sup>

14. Given the above institutions structure, it is not difficult to imagine that the actual land allocation involves an extensive administrative approval process.<sup>4/</sup> Many of these procedures have recently been institutionalized through the newly adopted City Planning Law. Article 31 of the new law explains the urban land allocation procedure:

"A construction project in the urban planned area that needs to apply for urban land shall apply to the city planning department by presenting the relevant documents indicating the state approval of the project. The urban planning department shall approve the location and boundary of the site to be used by the project, provide conditions for designing and planning, and approve and issue the state construction land use permit. The unit or individual undertaking the project may apply to the land administration department at or above county level for use of land only after receiving the construction land use permit. After the application has been examined and approved by people's government at or above the county level, the land administration department will then allocate the land to the unit or individual undertaking the project."

15. The following is a case study on Shanghai's land administration institutions, which provides a more detailed description of the functional departments within the Land Administration Bureau, and the structures and roles of county- and district-level land administration bureaus.

D. Shanghai Land Administration Institutions: A Case Study

16. Shanghai Municipality has provincial status and is directly under the supervision of the State Council. Under the Shanghai Municipal Government, there are 12 urban district governments and 9 county governments. The urban districts are further divided into 139 subdistricts, whereas county governments supervise township and village governments.

---

<sup>3/</sup> The land registration and building registration will be divided between the land administration bureau and the real estate administration bureau. The implication of this separation could be serious, since there is no common base covering building and land registrations, and little information sharing between these two bureaus occurs. In recent years, some cities, such as Beijing and Guangzhou, have decided to reintegrate these two functions into one institution. In the case of Beijing, land administration functions were transferred back to the real estate administration bureau. In the case of Guangzhou, the two bureaus have simply merged into one bureau.

<sup>4/</sup> For a detailed discussion of project approval procedure, please see Annex 2.

17. Organizations related to land management are listed in Figure 2. Shanghai Municipal Land Administration Bureau (SHMLAB) is administratively under the supervision of the vice mayor of the Municipal Government. It is directly supervised by the State Land Administration Bureau. Similar to the Shanghai Municipal Planning Bureau and Shanghai Municipal Real Estate Administration Bureau, SHMLAB is coordinated by the Shanghai Municipal Construction Commission. A level down from the Municipal Government are the District Planning and Land Administration Bureaus in the urban districts, responsible for both land management and planning. County Land Administration Bureaus are solely responsible for land management in the counties. The lowest level of land management rests with street land administration stations in the urban districts, and the township and village land administration stations in townships and villages.

18. Prior to 1985, land management in Shanghai was fragmented. The Land and Housing Office of REAB was responsible for land management in the urban built-up areas, while the Land Use Office of the Planning Bureau took care of land in new areas in the urban district. The Land Office of the Agriculture Bureau, on the other hand, managed land in the rural counties. In 1985, a year before the SLA in the central government was established, Shanghai unified land administration by setting up the Shanghai Municipal Land Administration Bureau (SHMLAB). Its main functions are:

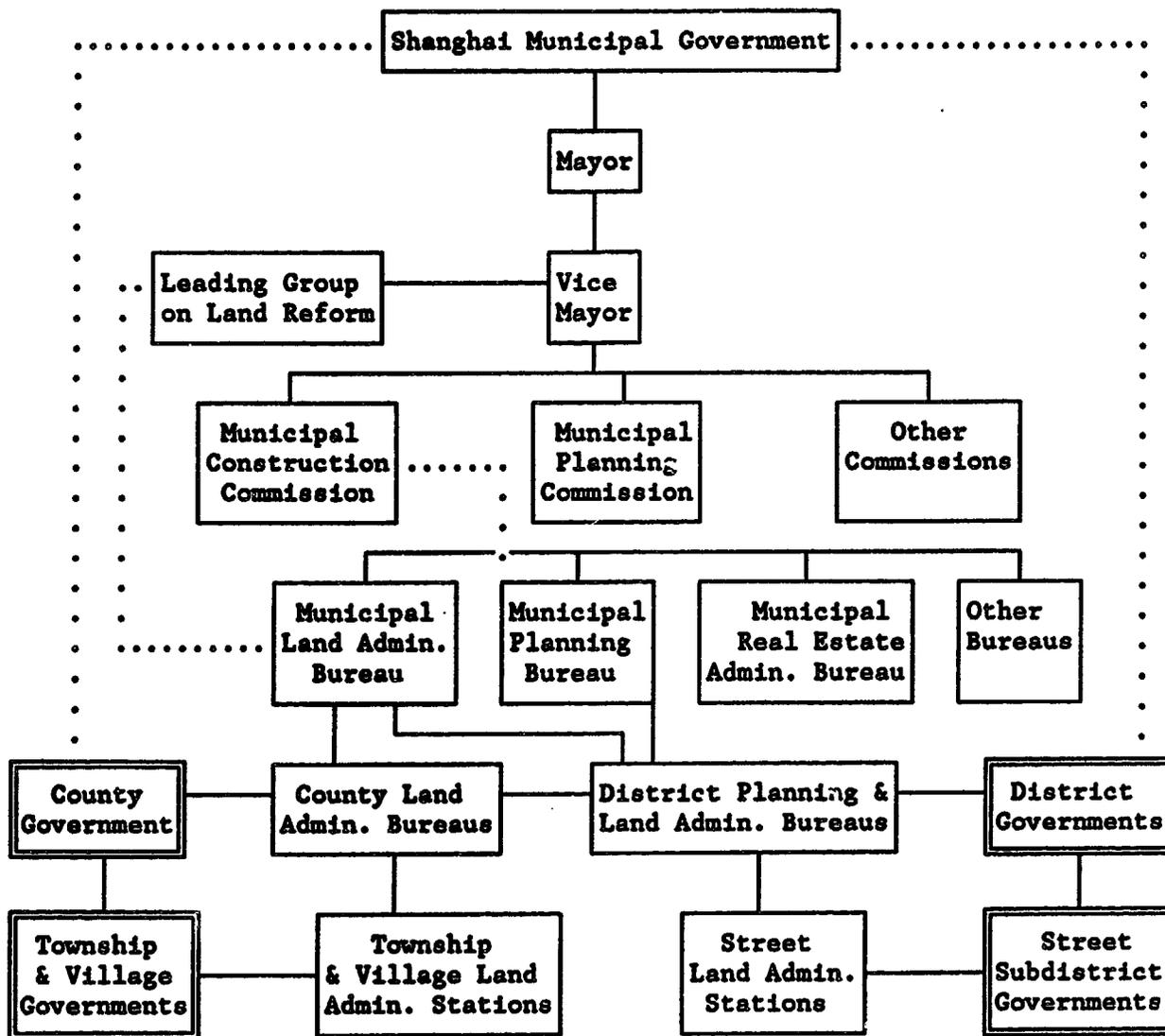
- (a) to implement state land policies, regulations, and related guidelines;
- (b) to formulate municipal land policies and regulations;
- (c) to organize unified land acquisition;
- (d) to approve and issue land use certificates;
- (e) to collect land use fees;
- (f) to mediate land-related disputes; and
- (g) to collect land information and data.

19. A year later, in 1986, the role of SHMLAB was expanded to include land management system reform. Since then, extensive work has been done on land registration and issuing of land use certificates.

20. Land registration has almost been completed in the 12 urban districts, while similar work in the 9 counties is scheduled to finish in 1992. The work of issuing land use certificates has been completed in 8 of the 12 urban districts. The rest of the districts will complete their tasks in 1992.

21. Under the land management system reform, transfer of land use rights with valuable consideration was introduced in August 1988. On August 8, 1988, a parcel of 12,973 m<sup>2</sup> of land in Hongqiao Economic and Technological Zone was leased for 50 years for commercial and residential uses. Another parcel of 3,616 m<sup>2</sup> of land in the same zone was also leased in early 1989 for comprehen-

**Figure 2: GOVERNMENT STRUCTURE AND LAND MANAGEMENT INSTITUTIONS IN SHANGHAI MUNICIPALITY**

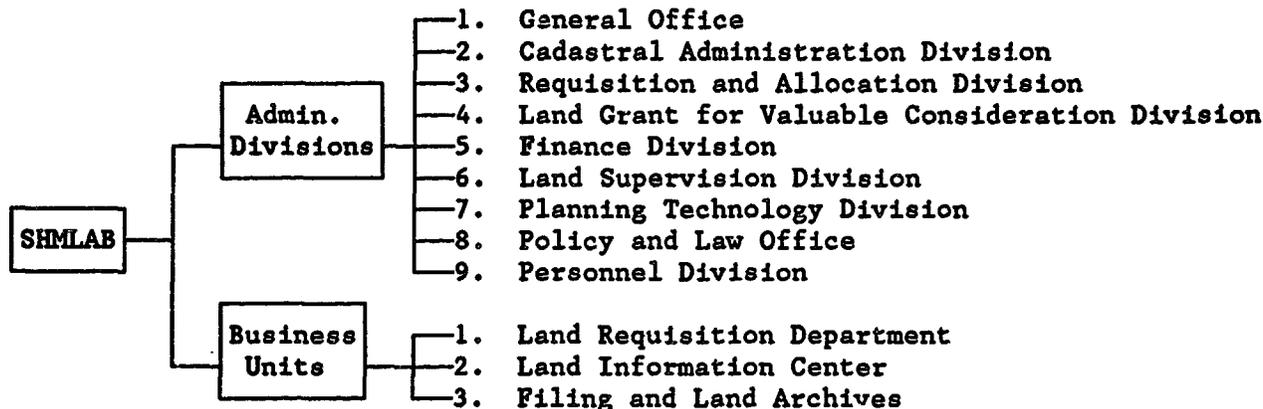


**Note:** The subordination of the Land Bureau to the Construction Commission is atypical, though the same arrangement exists in Guangzhou. In most cities, the Land Bureau reports directly to the relevant Vice Mayor or indirectly through other commissions.

sive development. Further progress on land leasing is discussed in Chapter III.

22. The organization chart of SHMLAB is given in Figure 3. It has 9 administrative divisions and 3 business units and an established staff of 170 persons. The functions and responsibilities of these divisions and units are given as follows:

**Figure 3: ORGANIZATION CHART OF SHANGHAI MUNICIPAL LAND ADMINISTRATION BUREAU (SHMLAB)**



- (a) General Office. This office provides general administration to other divisions. It coordinates and supervises the works of other units. It also handles disputes, complaints, reception and other day-to-day office management work.
- (b) Cadastral Administration Division. This division implements policies and regulations related to land registration and surveying. It issues land use rights certificates. It plans to issue a total of 1.57 million certificates (about 270,000 in the urban districts and 1.30 million in the rural counties). This division also determines survey methods, standards, codes and grades of land in the urban district.
- (c) Requisition and Allocation Division. This division handles all land allocation and requisition, including approving land transfer, land supply planning, supervising district and county land requisition.
- (d) Land Grant for Valuable Consideration Division. This division was established in 1987 directly under the director of the SHMLAB and works closely with the Leading Group on Land Use System Reform Office. It provides support services to the Leading Group. Auction and tender negotiation of land leases are also handled by this division. It publishes a Real Estate Market Report annually.
- (e) Finance Division. This division sets the Bureau's budget and standards on land taxes and fees. It also collects taxes and fees on land.
- (f) Land Supervision Division. It supervises all land use units, land regulations and laws. It also prosecutes unlawful and unauthorized land uses. In addition, this division supervises all land grants approved by district and county authorities in order to prevent unauthorized land allocation.

- (g) Planning Technology Division. This division conducts studies on land use planning policies and land resources utilization. It also coordinates disposal of land.
- (h) Policy and Law Division. This division drafts and formulates land policies, regulations and laws. It also comments on other bureaus' land-related regulations and laws.
- (i) Personnel Division. This division is responsible for personnel matters of the Bureau.

23. Apart from the above nine divisions, there are three business units under the Bureau. Their names and functions are as follows:

- (a) Land Requisition Department. This department carries out the actual land requisition work by negotiating with existing and future land users on the amount of compensation. It sets standards and requirements on compensation and supervises agreements reached by existing and future land users. It also resolves disputes between the two parties. This department charges a management fee of 1.5 percent of the cost of requisition.
- (b) Land Information Center. The center collects and keeps land information.
- (c) Filing and Land Archives. This unit was removed from the Land Information Center and became an independent unit in 1990. It manages all land registration and supervises lower-level, i.e., district and county, land registration.

#### District and County Land Management Organizations

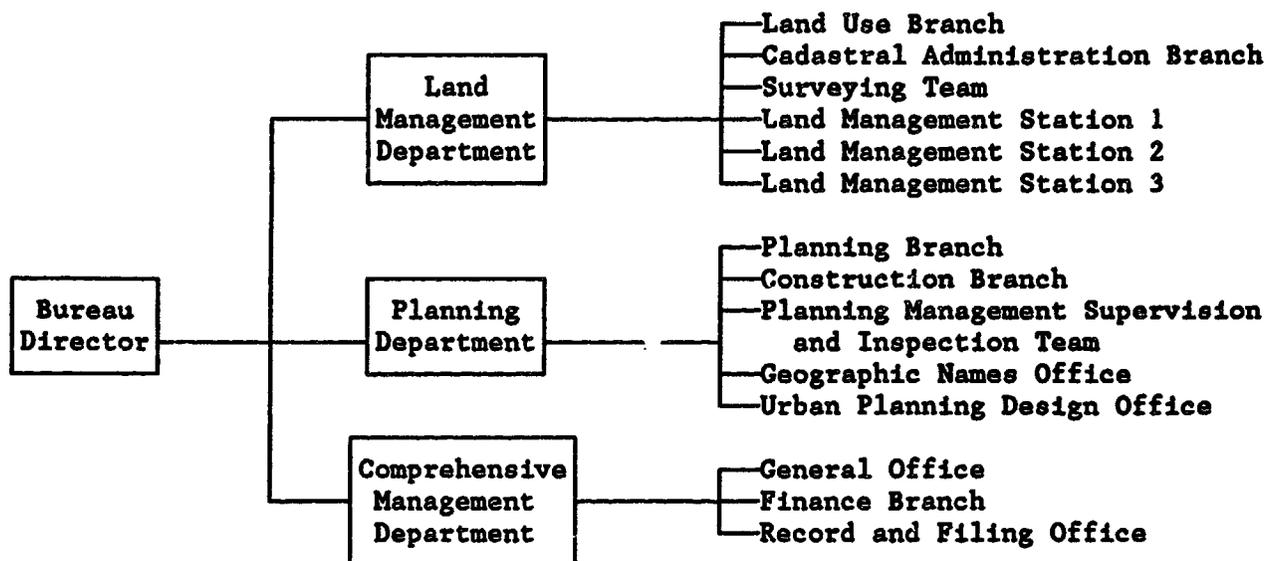
24. As pointed out earlier, land administration in the urban districts in Shanghai has been combined with planning, in the form of District Planning and Land Administration Bureaus, whereas county land administration bureaus are solely responsible for land management. In order to illustrate the differences in land management between districts and counties, Changning District Planning and Land Administration Bureau and Shanghai County Land Administration Bureau are used as case studies.

25. Changning District is located at the southwestern part of Shanghai Urban District. It has a land area of 28.2 km<sup>2</sup> and a population of 560,000 and 13,800 households. Administratively, it is divided into 10 streets and one rural town government. Hongqiao Airport, Hongqiao Economic and Technology Development Zone, and Gubei New Area are all located in this district.

26. Before 1987, land administration was under REAB. State land was managed by the Planning Bureau. In August 1990, the District Planning and Land Administration Bureau was established. The structure of the Bureau is given in Figure 4.

27. Shanghai County is located at the southwestern edge of the urban district. It has a land area of 374.44 km<sup>2</sup> and a population of 412,000. It

**Figure 4: CHANGNING PLANNING AND LAND ADMINISTRATION BUREAU**



has 19 towns and townships, 237 village committees, 24 resident committees and 2,197 village groups. The area of the County has been reduced from 453.79 km<sup>2</sup> to 374.44 km<sup>2</sup> since 1981, largely due to expansion of the urban area.

28. Planning and land management in the border areas between the urban districts and rural counties is different from that in other areas. Agriculture production of collective-owned farmland, which has been transferred to the urban district, is managed by the county, while land use is under the unified management of the municipal government. State land or collective-owned land that has been acquired by the state and transferred to the urban district is under the management of district government.

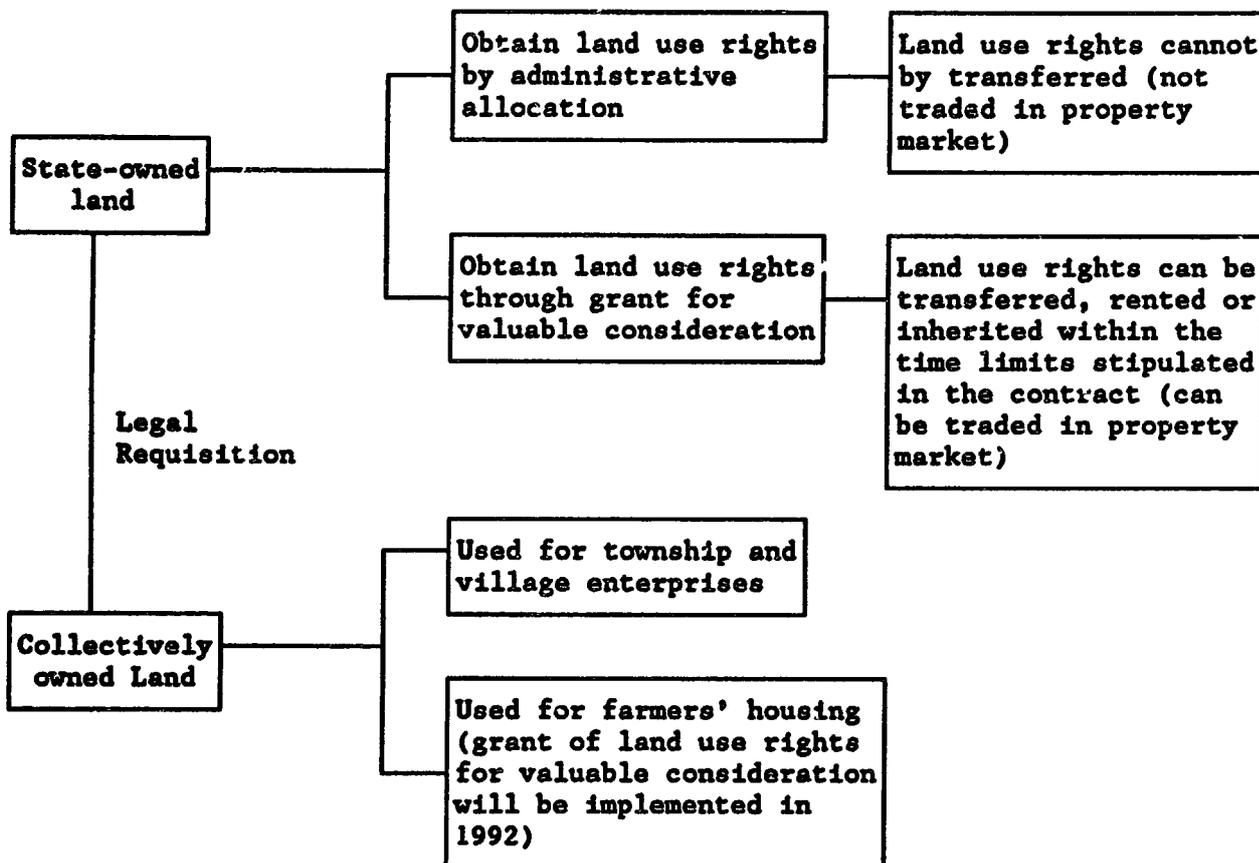
29. Shanghai County Land Administration Bureau (SHCLAB) was established in July 1987. It is responsible to the county government on all land matters. Its functions include management of land allocation, implementation of state/municipal land policies and regulations, supervision of land use, and provision of land-related services such as requisition and registration. The Bureau has the following seven branches: General Office; Finance Branch; Land Use Branch; Cadastral Branch; Land Requisition and Services Department; Supervision Branch; and Records and Information Office. Apart from these units, there are 19 land management stations in 19 townships under the Bureau. These stations are responsible for local land management.

**Land Disposition Process in Shanghai**

30. Similar to other parts of China, Shanghai has two types of landownership, i.e., state-owned and collective-owned land. State-owned land may be obtained through administrative allocation or through grant for valuable consideration. If land use rights are obtained by means of administrative allocation, they cannot be transferred or traded in the property market. Contrarily, land use rights obtained through grant for valuable consideration can

be transferred, traded or inherited within the time limits stipulated in the lease. Collectively owned land can also be reverted to state-owned through legal requisition but not the other way around (Figure 5).

**Figure 5: LAND OWNERSHIP TYPES IN SHANGHAI**

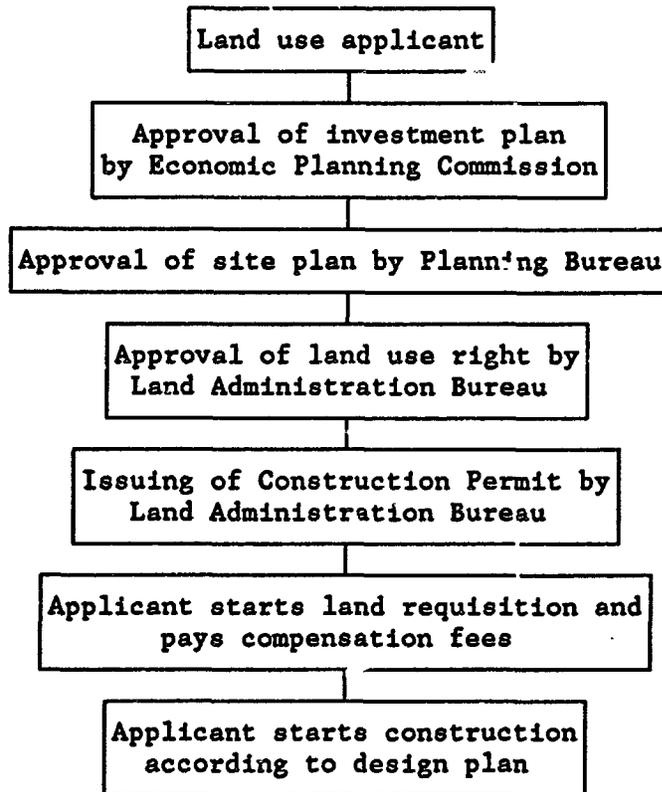


31. For collectively owned lands in rural counties in Shanghai, they are mainly used for enterprises and farmers' housing. The granting of land use rights for valuable consideration of collectively owned land has not yet been introduced but it will be implemented in 1992.

32. Figure 6 shows the administrative land allocation process. An enterprise or work unit seeking land for its expansion may submit an investment plan to the Shanghai Municipal Economic Planning Commission for approval. After the approval, the applicant prepares a site plan and sends it to the Shanghai Municipal Planning Bureau. Having obtained all the approvals from various concerned authorities, the applicant will be issued a construction permit by the Shanghai Municipal Land Administration Bureau. The applicant then begins land requisition and pays compensation to the affected residents. Construction work starts after the site has been cleared.

33. The process for granting and transferring of land use rights for valuable consideration is more complex. There are two forms of land grant, i.e., open tender and negotiated agreement (Figure 7). For open tender which

**Figure 6: SIMPLIFIED LAND USE APPLICATION PROCEDURES  
IN SHANGHAI MUNICIPALITY**

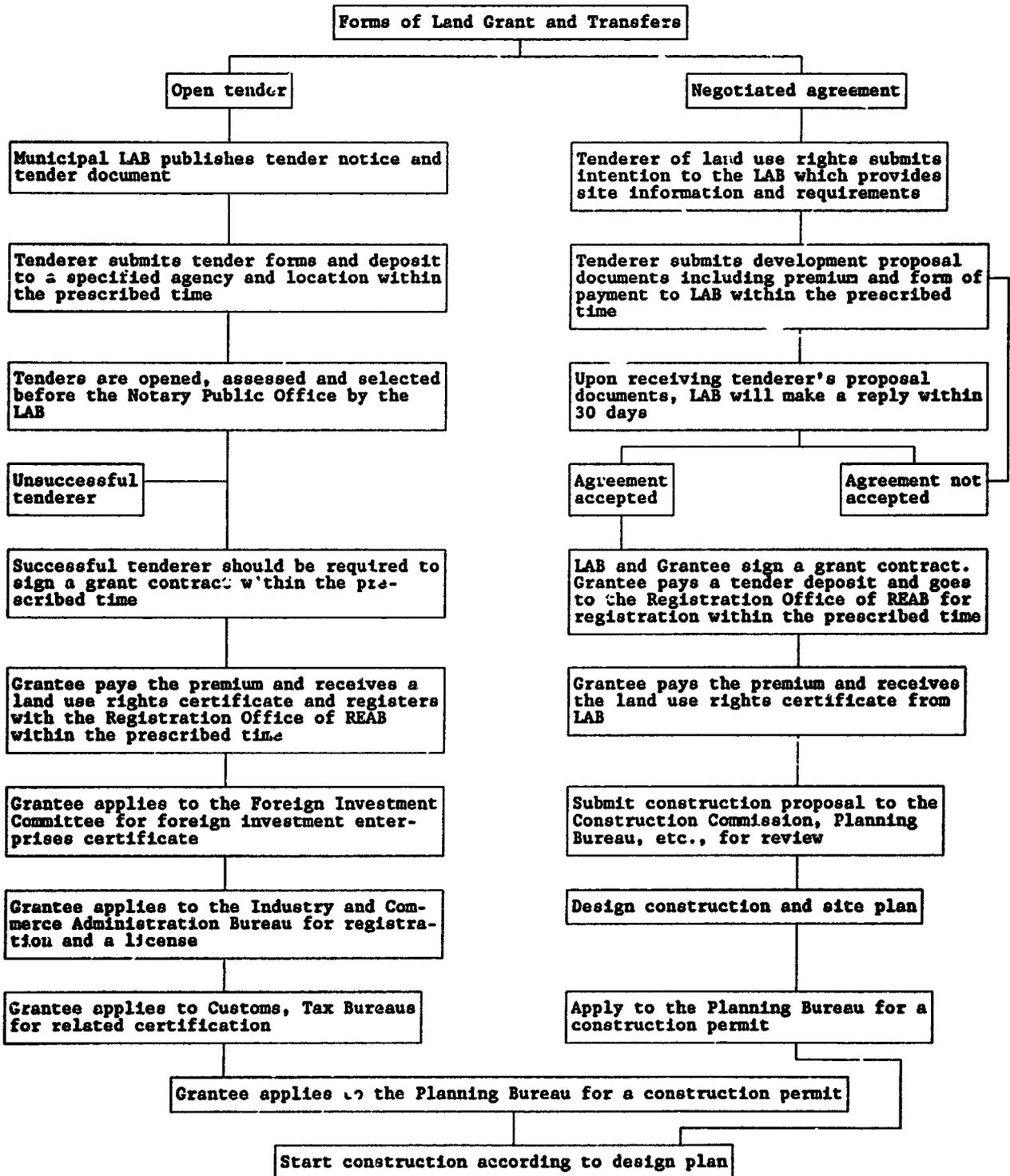


was introduced in 1988, the Shanghai Municipal Land Administration Bureau (LAB) first publishes a tender notice and tender documents to invite bids. Tenderers submit tender forms together with deposits to a specified agency and location within the prescribed time limit. Tenders are opened, assessed and selected before the Shanghai Public Office by LAB. The successful tender will be issued an acceptance notice by the LAB and shall be required to sign a grant contract within a prescribed time. After the Grantee pays the premium in accordance with the grant contract, the Grantee receives a land use certificate and registers with the Registration Office of REAB within a prescribed time. The Grantee then uses the grant contract and land use rights certificate to apply to (1) the Foreign Investment Committee for a foreign investment enterprises certificate, (2) the Industry and Commerce Administration Bureau for registration and a license, and (3) the Customs and Tax Bureaus for related certificates. After obtaining all the above certificates and licenses, the applicant then makes an application to the Planning Bureau for a construction permit and then starts construction according to the design plan. There is no time limit for the above process. It might take several months to a couple of years depending on the size and complexity of the project.

34. The process for the grant of land use rights for valuable consideration under negotiated agreement is similar to that of the open tender except

that it takes fewer steps and a relatively shorter time. The actual process is shown in Figure 7.

Figure 7: THE PROCESS OF THE GRANT AND TRANSFER OF LAND USE RIGHTS FOR VALUABLE CONSIDERATION IN SHANGHAI MUNICIPALITY



CHINA

URBAN LAND MANAGEMENT: OPTIONS FOR AN EMERGING MARKET ECONOMY

Procedures and Costs of Land Requisition 1/

A. Nature of Land Requisition

1. In China, under the Constitution, there are only two types of land ownership: state ownership and collective ownership. In general, the land in cities and towns is state-owned, and the land in the countryside is collectively owned. In the public interest, the state can requisition collectively owned land. In general, the process of urban expansion is also associated with a parallel process of converting collectively owned rural land into state-owned urban land. Land requisition for state construction is equivalent to "eminent domain" expropriation. There is limited room for negotiation on compensation terms, but the affected collectives and individuals have to comply.

2. This forced land requisition practice to accommodate state construction started in the early 1950s, and is codified in the "Land Administration Law of the People's Republic of China" (1986), which governs the process of land requisition and compensation, and divides authority over these activities among the central, provincial, and city government.

3. Although the "Land Administration Law" specifies that any project with cultivated land requisition above 1,000 mu (or 66.67 hectares) or noncultivated land above 2,000 mu (or 133.33 hectares) has to be authorized by the State Council (through the State Land Administration Bureau), no details were given regarding authorization limits applicable to local municipal governments. Their authorization limits are set by provincial governments. Most of municipal governments are given approval authorization of cultivated land requisition no more than 15 mu (1 hectare). For provincial governments, land requisition authorization for cultivated land could range from 15 mu to 1,000 mu (1 to 66.67 hectares).

4. Actual procedures involving project approval and land requisition are also governed by the "City Planning Law of the People's Republic of China" (1990), as well as by detailed implementation measures adopted by provincial and municipal governments. Under these two laws, any state-sponsored projects have to go through an approval procedure before any land requisition work can start. This approval procedure is designed to ensure proper implementation of city's investment and land use plans.

---

1/ Most of the descriptive materials is based on Ye Xiaowei, Land Requisition and Transfer in Shaoxing and Zhejiang World Bank, processed (1992), and data collected during the sector study missions.

## B. Approval Procedure of State Construction Projects

5. The process of land requisition starts with project approval, which includes approval from the local planning commission, the city planning bureau and the land administration bureau. The first step is to obtain local planning commission approval, which puts the project into the local "investment" plan. The second step is to get approval from the city planning bureau. According to the City Planning Law, there are two functions within the city planning bureau. One is to select a site for the project, or confirm a site already selected. The other is to approve the size of the site. When this step is completed, a construction land use permit will be issued by the city planning bureau. Box 1 involves a project in Shanghai, and illustrates the relationship among various city bureaus regarding project approval and implementation.

6. The process of land requisition cannot begin until each project passes three key approval steps, including (1) project investment approval from the Planning Commission; (2) project site selection and site approval from the City Planning Bureau; and (3) project land use rights application approval by the Land Administration Bureau.

## C. Land Requisition

7. Once a project is approved, the process of land requisition can begin. There are two different approaches to arranging for land requisition. One approach is to have the individual construction unit directly deal with collective farmers at the village or township level, to settle various compensation issues concerning land requisition. Although this approach has been adopted for many years, and it is still practiced in many Chinese cities, it is becoming increasingly inadequate to accommodate the needs of rapid urban expansion. Under this approach, negotiation on various compensation issues resembles a market trading process, in spite of extensive regulations and rules governing the supposed level of compensation. As a result, rising expectation from farmers and increasing new compensation items often lead to rapid increases in requisition costs and prolong the land requisition process. In some cases, the land requisition may take several years.

8. In order to deal with this problem, a different unified approach to land requisition was recommended by the "Provisional Regulation Concerning System Reform of Building Sector and Basic Construction Administration System," adopted by the State Council in 1984. According to this regulation, local governments were encouraged to take full responsibility for arranging land requisition for state projects. Under this approach, the City Land Administration Bureau (or any similar agency before the Land Administration Bureau was established) authorizes the construction unit and the local county Land Administration Bureau to sign a land requisition contract. The county land administration bureau will be responsible for implementing the actual land requisition steps on behalf of the construction unit, including: arranging compensation according to adopted rules and policies; evaluating rural labor resettlement requirements; and so on. Within the City Land Administration Bureau, the Land Requisition Department supervises the overall process.

Box 1: ZHONG YUAN ROAD HOUSING PHASE I

Step 1. Project Inception

On January 11, 1989, the Agricultural Commission approved the project sponsored by its Real Estate Development Company.

Step 2. Project Approval

On January 26 and January 28, two applications were sent out by the Real Estate Company: one was an application to the Shanghai Planning Commission for housing construction investment; the other, an application to the Shanghai City Planning Bureau for planning approval of a housing project, with a detailed design and site plan attached.

On April 15, 1989, the general design of the housing project was approved by the City Planning Bureau.

On June 19, 1989, the construction plan for housing was approved by the City Planning Commission.

Step 3. Land Allocation

After project investment and general site design approval, a construction land use permit certificate was issued by the City Planning Bureau. Based on these documents, the construction unit involved sent an application for construction land use to the City Land Administration Bureau. On July 5, 1989, state land allocation for the project was approved by the Shanghai Land Administration Bureau.

Step 4. Land Requisition

Once these approvals are completed (Steps 1 through 3), the project requires that land be requisitioned (if it is located in new area) or that developed urban land be expropriated and its occupants resettled (if the project is located in an existing built-up area). In general, the land requisition process would be carried out by local county or district land administration bureaus. Demolition and relocation in the built-up area would involve local district or county real estate bureaus. In this case, land was requisitioned from a suburban farm community. After the land requisition, a temporary construction land use certificate was issued by the City Land Administration Bureau on July 21, 1989.<sup>1/</sup>

Step 5. Construction

Once the site was obtained and final designs were approved by the City Planning Bureau, construction permits were issued. The project started on August 5, 1989.

---

<sup>1/</sup> In this case, since the site was already there, no actual land requisition procedure was required, which explains why it took only two weeks between the land allocation approval and the issuance of a temporary construction land use certificate.

9. Under this approach, because various rules and regulations are easier to implement, rapid increases in land requisition costs are avoided, and the whole process is completed within a relatively short period. In recent years, more and more cities have adopted this approach. Shanghai adopted this unified approach in 1986; this has resulted in shortening the average requisition time to only two to three months (normally several months, for some key state construction projects), while also reducing the total requisition cost.

10. By having local governments in charge of all land requisition, it is much easier to enforce the various rules concerning the cash or in-kind payments. In some cities, such as Shenzhen, land requisition contracts are signed long before a project is ever conceived. The farmers are provided with

a down payment, and allowed to farm until relocation is necessary. This allows the city to ensure that land is available at a relatively low cost.

#### D. Components and Cost of Land Requisition

11. Here, the cost of land requisition refers to the payment made by a potential land user during the process of expropriating land from collective villages under relevant regulations and laws. The ownership of expropriated land belongs to the state, while the land user only has land use rights. The following is a description of all land requisition items in Shanghai, and is broadly illustrative of the various fees paid and negotiation involved during the process. Table 1 provides a cost breakdown for two Shanghai projects.

**Table 1: LAND REQUISITION COST FOR TWO PROJECTS IN SHANGHAI**  
(Yuan/mu)

Items	Shanghai		No. 3 Housing Project	
	Yongxin Factory Cultivated	Total	Cultivated	Total
Cultivated Land Tax	4,000	3,175	6,667	4,542
Vegetable Land Fund	12,000	10,550	20,000	15,220
Land Compensation	2,100	2,100	3,500	2,839
Young Crop Fee	5,576	4,425	700	450
Grain and Oil Price Subsidy	(not implemented yet)			
Farmer Houses	6,217	4,933	7,750	5,280
TVE Relocation	5,576	4,425	17,429	11,875
Farming Facilities	1,782	1,414	2,894	1,972
Public Housing	24,618	19,540	34,364	23,413
Labor Resettlement	none required		8,281	5,642
Administration Fee and Others	892	708	1,108	755
<b>Total</b>	<b>57,915</b>	<b>47,369</b>	<b>102,693</b>	<b>71,988</b>
Unit Price (Yuan/m <sup>2</sup> )	87	71	154	107

- Notes: 1. Yongxin Factory required 409.5 mu, or 27.3 hectares of cultivated land and 78.72 mu or 5.25 hectares of noncultivated land in 1988.  
2. No. 3 Housing Project required 1,226.9 mu, or 81.8 hectares of total land area, of which 836.07 mu, or 55.7 hectares were cultivated land.

Source: Shanghai Land Administration Bureau.

Government-Collected Taxes or Fees

12. There are two such fees and taxes: one is the Cultivated Land Conversion Tax, which is collected by the local land administration bureau. The tax rate is Y 6,000/mu, or Y 9/m<sup>2</sup>. For other cultivated land, the tax rate is set at Y 4,500/mu, or Y 6.7/m<sup>2</sup>.

13. The second is the Vegetable Land Rebuilding Fund. The rate ranges from Y 12,000 to Y 20,000/mu, or Y 18 to Y 30/m<sup>2</sup>. For vegetable land within the vegetable land protection zone, Y 20,000/mu, or Y 30/m<sup>2</sup>, is collected. For vegetable land outside the protection zone, Y 120,000/mu, or Y 18/m<sup>2</sup>, is collected.

Land Compensation

14. For current landowners, i.e., collective farmers, there are three types of payments directly related with land compensation. One is land compensation, which ranges from Y 3,700 to Y 5,000/mu, or Y 5.5 to Y 7.5/m<sup>2</sup>, for vegetable land; and Y 2,500 to Y 2,800/mu, or Y 3.7 to Y 4.2/m<sup>2</sup>, for other cultivated land.

15. The second is compensation for young crops, which ranges from Y 600 to Y 900/mu, or Y 0.9 to Y 1.3/m<sup>2</sup>, for vegetable land, and Y 380-470/mu, or Y 0.6-0.7/m<sup>2</sup>, for other cultivated land.

16. The third type is agricultural and nonagricultural grain and oil price subsidies. In China, urban residents are provided with subsidized grain and oil. Such subsidies are also required for those farmers who have been displaced by the project. The rate for such compensation is set at Y 2,500/mu, or Y 3.75/m<sup>2</sup>, for vegetable land, and Y 1,800/mu, or Y 2.7/m<sup>2</sup>, for other cultivated land.

Property Compensation Fees

17. The property compensation fees cover a range of collective-owned and private-owned structures or other farming facilities, including fishponds, water irrigation projects, and buildings. Compensation is paid to the collectives or individuals depending on who owns the property. There are four types of compensation:

- (a) one is compensation for relocating township and village enterprises, which averages Y 9,000/mu, or Y 13.5/m<sup>2</sup>;
- (b) the second is compensation for demolished farming facilities, which is set at Y 2,000/mu, or Y 3/m<sup>2</sup>;
- (c) the third type of compensation provides for public housing for relocated farmers, and averages Y 25,000/mu, or Y 37/m<sup>2</sup>. The cost of providing public housing is based on 24 m<sup>2</sup> of floor space per person at 1.3 persons per mu, with a maximum total housing compensation cost set at Y 800/m<sup>2</sup>; and

- (d) the last type is compensation for demolished farmers' houses. This averages Y 5,500/mu, or Y 8.2/m<sup>2</sup>. This compensation is based on one family per 3 mu, and 130 m<sup>2</sup> per family, which reflects the price of demolished houses. If farmers choose to rebuild their houses, the compensation will be set at Y 8,000/mu, or Y 12/m<sup>2</sup>. As a result, there will be no need to provide public housing for those farmers.

Compensation of Displaced Laborers

18. The potential land user will be responsible for the employment of displaced farmers. If the new users cannot absorb them into their enterprises, they must pay a resettlement fee to an enterprise that can absorb them. The total labor resettlement compensation is set at Y 15,000/mu, or Y 22.5/m<sup>2</sup>.

19. In addition, social security support for the elderly is also required. The number of such elderly is based on 1.8 persons per mu, assuming an 8:2 ratio between qualified labor and elderly. The compensation for elderly individuals averages Y 20,750/person, with Y 17,845/person for males, and Y 23,716/for females. The combined total labor resettlement cost averages Y 29,000/mu, or Y 43.5/m<sup>2</sup>. If the new land user can absorb the surplus laborers, there will be no labor resettlement cost.

CHINA

URBAN LAND MANAGEMENT: OPTIONS FOR AN EMERGING MARKET ECONOMY

Procedures and Costs of Urban Resettlement

A. The Nature of Urban Resettlement in China

1. Unlike land requisition procedures, which change land ownership from collectively owned rural land to state-owned urban land, urban resettlement caused by urban redevelopment projects or infrastructure upgrading does not involve any landownership change. Instead, it often results in change of land use rights between existing land users and potential land users. Such differences, however, seems to have little impact on actual implementation of projects. In fact, if a proposed urban redevelopment is a state-sponsored construction project, it has the same "eminent domain" effect as in a land requisition case. Since most urban projects are sponsored or approved by the local government, in theory, most of these projects should be able to proceed unhindered.

2. According to newly adopted State Council regulations on urban resettlement--Urban Building Demolition Administration Regulation (March 1991)--if relocation is required under the general urban construction program, all affected units or individuals, who either use or own properties on the state-owned urban land, have to comply with the resettlement process. The relocater or developer is required to provide compensation for individuals and units being relocated.

B. Preconditions to Resettlement

3. The process of resettlement starts with the project approval, which includes approvals from the local planning commission, the city planning bureau and the land administration bureau. The first step is to obtain local planning commission approval, which puts the project into the investment plan. When the project is within the investment plan, the second step is to get approval from the city planning bureau. According to the City Planning Law, there are two functions assigned to the city planning bureau. One is to select a site for the project, or confirm a site that has been selected. The other is to approve the size of the site. When this step is completed, a construction land use permit is issued by the city planning bureau. Based on these documents, the construction unit sends an application for construction land use to the city Land Administration Bureau.

4. Once these approvals were granted, the project entered the land requisition phase. In general, the land requisition process is carried out by local county or district land administration bureaus. (Demolition and relocation in the built-up area would involve local district or county real estate bureaus.) Once the land is obtained, a temporary use of construction land certificate will be issued.

5. The process of urban resettlement or land requisition process will not begin until a project passes three key approval steps, including (1) project investment approval from the local Planning Commission; (2) project site selection and site approval from the City Planning Bureau; and (3) project land use rights application approval by the Land Administration Bureau. To some extent, we can view land requisition and urban resettlement as following the same overall project cycle approval process. Their main purpose is to acquire land in order to implement the approved project. However, because of many different issues involved during the process of land requisition and urban resettlement, a separated discussion of the procedures and costs involved in urban resettlement is necessary.

### C. Procedures for Resettlement

#### Obtaining a Demolition and Relocation Permit

6. According to new resettlement regulations, both state and local, only those construction units or individuals who hold demolition permits will be allowed to carry out actual relocation and demolition. In order to obtain this permit, a construction unit has to submit the following documents, along with demolition and relocation applications, to local district or county real estate bureaus:

- (a) a project investment approval document;
- (b) a construction land use permit from the city planning bureau;
- (c) a land use authorization document from the land administration bureau; and
- (d) a relocation and resettlement plan.

7. If the application is granted, a certificate of relocation and demolition will be issued, which will authorize the unit or individual to carry out the resettlement. The permit will specify the boundary and time limit of the resettlement process. Normally, the demolition and relocation cannot exceed approved boundary and resettlement time limits.

8. In some cities, such as Shanghai, if a redevelopment project meets certain conditions, then the demolition and resettlement permit requires city-level real estate bureau approval. These conditions include:

- (a) if more than 300 households are to be relocated, or more than 100 households are to be temporary sheltered;
- (b) if more than 10 households must live in self-arranged temporary shelters; and
- (c) if foreign institutions and individuals are involved.

9. Given these conditions, it seems that most urban redevelopment projects will require city-level real estate bureau approval regarding demolition

and relocation. In general, the city real estate bureau has to respond within 20 days, once an application is received.

#### Public Dissemination of Information

10. Once the demolition and relocation permit is issued, the real estate bureau must inform the public within the affected neighborhoods regarding the boundary of the redevelopment area, relocation timetables, and building demolition plans.

11. In addition, the real estate bureau is also responsible for informing relevant departments to stop activities within the boundary of the redevelopment project. This includes:

- (a) informing relevant departments to stop any sale, lease, or exchange of buildings within the demolition boundary;
- (b) informing the public security office to stop processing household registrations;
- (c) informing the commerce bureau to stop issuing business licenses within the area.

#### Resettlement Contract

12. The last and perhaps the most important step in the resettlement process is to arrange for a compensation and resettlement contract between the construction unit and affected residents and enterprises. Once the demolition and relocation permit is issued and the announcement is made, both the construction unit or developer and residents or units to be relocated are required to develop detailed compensation and resettlement arrangement plans. In this regard, newly adopted national and local regulations concerning demolition and relocation provide extensive details on how compensation for demolished buildings should be determined, and how resettlement arrangements must be made for both private building owners and tenants of public housing, as well as affected enterprises. Once a contract is signed between these two parties, the actual process of demolition, site preparation, and construction can begin.

#### D. Contents of Compensation and Resettlement

13. For any redevelopment project, such contracts often include two parts: one covers compensation made to owners of demolished properties; the other provides for resettlement arrangements for both tenants and private homeowners, as well as displaced enterprises or shops.

#### Compensation for Demolition

14. There are several ways of calculating proposed compensation: one is to provide replacement structures for building owners, either on-site or off-site. The second approach is to provide cash payment for demolished properties. The third approach is to combine the first two approaches. The amount of compensation made to replace structures and any additional cash compensa-

tion will be based on the amount of existing building floor space. Cash compensation, however, is often based on depreciated replacement value. In some cities, like in Shanghai, a separate cash payment schedule for different kinds of structures is formulated by the Construction Commission and the Price Bureau.

15. According to demolition and relocation regulations, for different types of users and different owners, different guidelines will be followed:

- (a) If the demolished building is a public service building, then the developer must rebuild this structure according to its original use, and size, or provide a replacement cash payment to the city for other arrangements. This approach also applies to other publicly owned nonresidential structures, except that public institutions have to pay the price difference resulting from any improved structure quality or increased floor space.
- (b) For public residential structures, the developer is required to provide replacement structures on-site or at different locations for the owner. The owner will not pay for the price difference resulting from any increased floor space and improved housing conditions. Original rental relationships involving public housing tenants will remain in place; no higher rents will be imposed.
- (c) For private housing owners, if they elect to receive cash compensation instead of a replacement structure, both their property ownership certificates and their land use certificates will be canceled. For those who want to keep their ownership, they will have to pay any price difference caused by improved quality and increased floor space. If the new per capita floor space is below 24 m<sup>2</sup>, and the size of the new housing unit does not exceed the old one, the owner can buy additional floor space at one third of the construction cost. If the new per capita floor space is above 24 m<sup>2</sup>, and the new unit size is smaller than the old one, the owner has to pay the cost-recovery price for any additional floor space. This additional price has to be paid in full before the owner can obtain the unit.
- (d) The last and often the most expensive compensation involves relocating industrial or commercial enterprises. In order to relocate a factory, the following costs have to be met:
  - (i) cash compensation for demolished properties and nonrelocatable equipment;
  - (ii) land requisition costs for providing a site of similar size;
  - (iii) moving and costs related to the installation of factory equipment;
  - (iv) wage compensation for employees during the period of temporary unemployment.

16. Compensation is paid in several parts. During the project preparation stage, 30 percent of total compensation has to be paid. When construction begins, the remaining 70 percent is then paid. They could also be paid in full at one time, if all old structures are to be demolished immediately. If the relocated factory allows the developer to build a new structure for it, no compensation will be paid to the original owner. In addition, price differences that result from an increase in land area, floor space and improved structures will be paid by the enterprise.

#### Resettlement Arrangement

17. The construction unit or developer is also required to provide replacement housing for those relocated from the proposed sites. If there is insufficient housing to accommodate all current users, both temporary shelter or self-arranged accommodations are permissible options. Temporary shelters are required to have "normal living conditions," and "basic housing facilities."

18. Here, "current property users" refers only to those who have permanent residency permits in the city and live within the redevelopment area. However, since one of the main purposes of redevelopment is to improve the housing conditions for existing residents, certain types of residents will not be eligible for resettlement. For example, if one family has an additional housing unit outside the redevelopment site, this family will not be given a new housing unit after redevelopment.

19. One complicated issue is determining those who are eligible for resettlement, and what kind of household "separation" will be allowed in order to calculate the total number of residents to be resettled. In order to deal with this, local regulations, particularly detailed implementation measures, include all possible conditions for determining who will be included in resettlement arrangements, and what kind of household "separation" will be allowed for resettlement purposes.

20. Once the number of persons and households to be relocated is determined, the next step is to figure out the exact amount of new housing space that each family will get, which is often linked to the different locations where replacement housing is provided. If the new project is not a residential project, all current residents will have to relocate to new suburban areas. If the new project is a commodity housing project, most of the residents have to relocate to the urban fringe; only those who want to pay the price differential between housing in the urban fringe and at the redevelopment site will be allowed to return to the original location. In order to encourage residents to move to suburban locations and improve the feasibility of the redevelopment project, incentives are given to people who choose to relocate to suburban locations (Table 1). This standard also applies to those private owners who want to give up their ownership rights and become renters of public housing units.

#### E. Cost of Resettlement

21. During the process of urban redevelopment, the major cost involves resettlement. In many cases, the resettlement cost is several times greater

**Table 1: SHANGHAI STANDARDS FOR THE REPLACEMENT OF DEMOLISHED HOUSING**  
(m<sup>2</sup>/person)

Original living area	Living area allocation in the same or near site	Living area allocation to fringe area
under 4	maintain previous amount	4
4- 7	4- 5	5- 6
7-10	5- 6	6- 7
10-13	6- 7	7- 8
13-16	7- 8	8- 9
16-19	8- 9	9-10
19-22	9-10	10-11
22-25	10-11	11-12
25-30	11-12	12
30+	12	12

Source: Shanghai City Building Demolition and Relocation Administration Detailed Implementation Regulation, July 19, 1991.

than that of the actual project cost (such as road expansion, and so on). Table 2 provides a detailed cost analysis of a redevelopment project in Hangzhou, the Xiao Fuqing Xiang Redevelopment Project.

**Table 2: HANGZHOU: XIAO FUQING XIANG REDEVELOPMENT PROJECT**

Items	Land area (ha)	Floor space ('000 m <sup>2</sup> )	FAR	Percent of total	Date
Total	0.74	14.02	1.91		1988-90
Of which:					
Resettlement Space		9.53		68.00	
Commodity Space		4.49		32.00	

Source: Hangzhou Building Development Corporation.

22. Several items need emphasizing. One is the ratio of commodity housing to total completed floor space. Since all resettlement space has to be financed by commodity housing sales, the higher the ratio of commodity to "free" housing, the more feasible or more profitable the redevelopment project. In this case, this ratio is only 32 percent, which is considered low by Chinese standards. In other words, almost 70 percent of the completed floor space will be used to accommodate current users or owners at virtually no cost. Table 3 illustrates the relatively high share of resettlement cost in terms of overall project costs.

Table 3: COST BREAKDOWN OF XIAO FUQING XIANG PROJECT

Items	Total cost (Yuan)	Unit cost (Yuan/m <sup>2</sup> )	Percent of total
<b>A. Planned Cost</b>	<b>4,791,211</b>	<b>1,068.27</b>	<b>70.65</b>
Resettlement	3,014,974	672.24	44.46
Building compensation	161,426	35.99	2.38
Temporary shelter	242,863	54.15	3.58
Moving expense	3,588	0.80	0.05
Wage loss	110,780	24.70	1.63
Building residual value	(67,634)	-15.08	-1.00
Resettlement cost	2,563,951	571.67	37.81
Design & site preparation	154,328	34.41	2.28
Survey fee	13,365	2.98	0.20
Design fee	31,888	7.11	0.47
Site use fee	13,948	3.11	0.21
Water fee	8,073	1.80	0.12
Electricity	34,445	7.68	0.51
Land leveling	52,609	11.73	0.78
Construction	1,206,644	269.04	17.79
Construction	991,634	221.10	14.62
Installation	143,385	31.97	2.11
Other facilities	71,625	15.97	1.06
On-Site infrastructure	249,327	55.59	3.63
Water connection	130,507	29.10	1.92
Electricity	58,176	12.97	0.86
Sewage	25,349	5.65	0.37
Road	35,295	7.87	0.52
Administration cost	80,446	17.94	1.19
Loan interest	85,492	19.06	1.26
<b>B. Planned Profit</b>	<b>146,036</b>	<b>32.56</b>	<b>2.15</b>
<b>C. Tax</b>	<b>321,084</b>	<b>71.59</b>	<b>4.73</b>
<b>D. Subtotal (A + B + C)</b>	<b><u>5,258,331</u></b>	<b><u>1,172.43</u></b>	<b><u>77.54</u></b>
<b>E. Price Difference</b>	<b>630,815</b>	<b>140.65</b>	<b>9.30</b>
<b>F. Surcharges</b>	<b>524,581</b>	<b>116.96</b>	<b>7.74</b>
Off-site fee	496,551	110.71	7.32
Park fee	28,030	6.25	0.41
<b>G. Construction Tax</b>	<b>368,034</b>	<b>82.06</b>	<b>5.43</b>
<b>H. Total (D + E + F + G)</b>	<b><u>6,781,761</u></b>	<b><u>1,512.10</u></b>	<b><u>100.00</u></b>

Notes: 1. Total cost (H) is also the approved price for commodity housing.  
2. Unit cost is obtained by dividing total cost by the 4,485 m<sup>2</sup> of commodity housing floor space.

Source: Hangzhou Building Development Corporation, 1991.

CHINA

URBAN LAND MANAGEMENT: OPTIONS FOR AN EMERGING MARKET ECONOMY

Redevelopment Regulations in Selected Asian Cities

A. Introduction

1. This annex summarizes the redevelopment experiences in three Asian cities: Hong Kong, Seoul and Singapore. The three cities share many common features and offer some lessons for the design of redevelopment policies and programs in the People's Republic of China. First and foremost, the three cities all experienced tremendous population and economic growth between 1950 and 1980, and the urban areas of these cities were virtually rebuilt. In the 1980s, urban growth declined as population pressures subsided, but rising incomes and fundamental structural economic change generated enormous demands for residential, commercial and industrial space.

2. In the early years of redevelopment, government played a critical role in slum clearance and urban renewal. In Hong Kong, Singapore and Seoul, vast areas of land were redeveloped, and government was quick to exercise its powers of eminent domain to assemble land to carry out its projects. Most attention was targeted on squatter settlements in these cities. In Singapore in 1959, over 250,000 people lived in dilapidated prewar housing and 300,000 occupied shacks and huts. In Seoul, over 32 percent of the housing stock in 1970 was classified as slums. In Hong Kong, massive slum clearance took place in the 1960s and 1970s. In both Hong Kong and Singapore, public housing was constructed at unprecedented levels and by 1990, such housing accounted for over 50 percent in Hong Kong and 87 percent in Singapore.

3. In the 1980s, middle-class resistance to heavy-handed public urban renewal emerged in Hong Kong and Seoul. In response, both governments altered their policies. In Seoul, the Korea Land Development Corporation (KLDC) and the Seoul Municipal Government (SMG) no longer initiate urban renewal projects; instead, they rely on private landowner associations (unions) to prepare redevelopment schemes. In Hong Kong, urban redevelopment is now handled by a quasi-governmental agency, the Land Development Corporation (LDC). Much like a private sector developer, the LDC is charged with the responsibility of redeveloping key districts. The LDC does not have direct powers of eminent domain; it must assemble land through negotiations. Only in extreme cases (there have not been any yet) can the LDC request assistance from the government to compulsorily acquire land. Since the LDC is an independent agency, it receives no special treatment from the Hong Kong Housing Authority to resettle households from redevelopment project areas.

4. In the Hong Kong case, redevelopment is still very much private sector-driven and the government, through the LDC, is now playing a limited role in promoting and carrying out urban redevelopment. To date, only one project has been completed since the LDC's inception in 1988. In Seoul, the pace of urban redevelopment has slowed, but there is still activity. The SMG

has taken a position different from Hong Kong and it provides public housing for tenants displaced from redevelopment areas.

5. Singapore, in contrast to Hong Kong and Seoul, continues to pursue a highly aggressive redevelopment agenda, and is now quite active in the renovation and, in some cases, demolition and redevelopment of older housing projects. While there are some concerns over failure to preserve historic areas, by most accounts both the Urban Redevelopment Authority and the Housing Development Board are well-regarded by Singaporeans.

6. Given the pressing conditions faced in most cities in the People's Republic of China and the public ownership of land in urban areas, Singapore's practices seem to be the most relevant and appropriate for consideration for possible adaptation in China. Further assessments of the Singapore model of redevelopment should be considered. In the following sections, brief sketches of each city's redevelopment activities are presented.

### B. Hong Kong

7. In the past 46 years, Hong Kong has experienced rapid population growth and urban development. The population of Hong Kong has grown from 1.6 million in 1946 to the present 5.8 million. During the first two decades after the Second War World, the annual population growth rate averaged 5 percent, causing tremendous demand for land to support housing and other economic activities.

8. After the late 1960s, the population growth of Hong Kong fell to 2 to 3 percent per year. Apart from the surge of illegal migration from China in the late 1970s that added near 400,000 newcomers, population pressure has greatly eased. At present, the annual population increase is around 1 percent. However, the slow growth of population has not decreased development pressures or the demand for land. Pent-up demand and rising incomes continue to spur development, especially in the core areas of Central, Wanchai and Kowloon. The high concentration of population, employment and other activities in these areas has resulted in continuing rebuilding and densification.

9. Redevelopment in Hong Kong is driven by an efficient and dynamic land and property market. In the inner city, different uses are competing with one another and the bidding for offices, hotels and other commercial floor spaces displaces the existing uses such as residential, manufacturing related and other activities. Rising land values in the center provide strong incentives to convert existing uses to higher and more profitable uses, and the private sector has led the way in rebuilding much of Hong Kong over the past 20 years.

10. Private urban redevelopment is guided by the market. When the shortage of housing reached its apex in the late 1950s, the private sector replaced the prewar tenements with high-rise residential blocks. Between 1957 and 1965, the whole city was practically rebuilt. When office and hotel demand was excessive in the late 1970s, buildings in Central, Wanchai and Causeway Bay were pulled down for commercial, financial and tourist purposes. The trend was later intensified by the construction of the Mass Transit Line. The waterfront has received attention too. Traditional port facilities such

as dockyards, warehouses, rail depot, oil depots have been relocated to the outer areas, making way for housing estates and commercial uses.

11. Private redevelopment is supported by a range of agents such as landowners, developers, financial experts, legal professionals, real estate professionals and contractors. Development is competitive, specialized, professional, and coordinated. Nonetheless, the property market is highly cyclical as construction booms of one type of property follow another until a major readjustment halts the boom.

12. Guided by the market, private urban redevelopment is essentially profit-driven. Such redevelopment rarely takes social and environmental objectives into consideration unless these concerns are capitalized into market demand, and there are few examples of large-scale redevelopment projects by the private sector that incorporate community facilities landscaping.

13. From the supply side, the government acts as the sole supplier of land to private sector for development. The government also regulates redevelopment intensity and land use conversion through its dual capacity as the ultimate land lessor and land use regulator. Though the supply of land is always criticized as monopolistic and a "high land price" policy is adopted, the government seems to function in accordance to market forces. It is undeniable that land, particularly at prime locations, is short of supply because of the physical constraints. Yet the property market responds to excessive supply or demand by price fluctuation, as any other functioning market.

14. In some cases, private developers have difficulty assembling land for redevelopment. Despite poor building conditions and excellent locations, fragmented ownership and lengthy negotiations often make redevelopment projects unfeasible. In such circumstances, government can play an important role in facilitating urban redevelopment. In Hong Kong, as well as in Singapore and Seoul, governments were proactive in the 1960s and 1970s to promote redevelopment. However, in the 1980s, the Hong Kong Government shifted strategy to a more laissez faire policy, establishing the Land Development Corporation.

#### Hong Kong Land Development Corporation

15. In the early 1980s, the government commissioned a series of consultant studies to identify a future integrated, spatial development strategy for Hong Kong. Several developments led to this action. After a decade of massive commitment in new town programs, some policymakers began to reconsider whether alternative development strategies could make investment more cost-effective. While government programs have eased housing shortages (producing units for 41,366 households between 1972 and 1985), continuing economic prosperity called for higher-quality housing and amenities, more community facilities and higher environmental standards. The restructuring of the economy has imposed different type of land demand on nonresidential uses such as prime office floor space, commercial and hotel accommodation, and large-scale infrastructure.

16. In formulating the Territorial Development Strategy, the government divided Hong Kong into several subregions and conducted detailed studies in each area. Taken together, the studies' findings revealed that Hong Kong has

the capacity to meet future land requirements associated with demographic and economic growth. In particular, the Study on Harbor Reclamation and Urban Growth (SHRUG) concluded that the whole urban core could hold at least half a million additional persons if the development potential of all areas were fully exploited. The study's findings led to a policy shift away from new town development to initiatives aimed at promoting more centralized development, because of the latter approach's superiority over decentralized new town developments in terms of energy conservation and infrastructure cost-effectiveness. These studies would be of obvious interest to Chinese urban planners, especially those in Shanghai who have assumed that a decentralized land development strategy is the most appropriate means to accommodate future urban growth.

17. In March 1982, the Special Committee on Land Supply (SCLS) initiated a review of the effectiveness of the government's action toward urban renewal and redevelopment policies. The SCLS concluded that rehousing and consolidation of landholdings in amalgamating properties and in obtaining vacant possession appeared to be the major difficulties impeding redevelopment. In response to these conclusions, the SCLS established a Working Group on Urban Renewal to consider and recommend the broad principles and possible actions the government should take to expedite urban redevelopment. The Working Group outlined the following principal objectives: (a) to speed up private sector development in selected areas; (b) to encourage the participation of landowners; (c) to improve the quality and economic benefits of developments by assembling larger sites; (d) to ensure equitable treatment of the tenants; (e) to provide improved community facilities, including better traffic circulation; and (f) to minimize the need for direct government subsidies and the application of compulsory acquisition powers.

18. After considering several alternatives, the Working Group recommended the formation of an independent Land Development Corporation (LDC) as an effective means to encourage the private sector participation in land development. A feasibility study on the LDC was commissioned in 1983 to determine the scale, scope, and geographical coverage of the LDC. The consultant reported that the LDC was feasible, and it should focus on the redevelopment of the inner city. Three working groups were subsequently set up to examine the planning, land assembly, clearance, rehousing, organizational, legislation and financial aspects of the proposal.

19. In 1984, the Land Development Policy Committee accepted the recommendations of the consultancy report and announced its decision to establish the LDC as an statutorily independent public corporation to carry out redevelopment projects by utilizing private resources. The government then took the necessary steps to establish the LDC. The Executive Council approved starting of advanced activities connected with the formation of the LDC in June 1985. As a first step, a Coordinating Urban Renewal Team (CURT) within the Town Planning Division was set up to provide initial technical and professional support to the LDC. The CURT focused on providing planning inputs such as reviewing past urban renewal proposals, identifying sites for redevelopment, recommending priority areas, setting planning parameters and drafting action area plans. It also served as a coordinator among government departments regarding the programming of community and recreational facilities in relation to the redevelopment proposals. Parallel to these efforts, the Lands

Division also set up teams at the district level to assess resumption cost (acquisition of leasehold interests in leased crown land) and to prepare for land clearance and other related duties.

20. Between 1984 and 1988, CURT compiled a priority list of districts in need of redevelopment. The Secretary of Lands and Works designated these districts as Urban Renewal Areas within which redevelopment proposals will be prepared. On the legislative side, the government prepared a bill to establish the LDC in mid-1987. In December 1987, the Legislative Council enacted the LDC Ordinance and the LDC was formally established in January 1988. The government provided a HK\$100 million loan with the LDC as initial working capital.

21. As of 1992, apart from the conservation project of the government-owned Western Market, there has not yet a redevelopment scheme completed in the first four years of the LDC. In this period, the LDC has spent much of its effort in negotiating the purchase of properties in identified redevelopment areas, striking joint-venture deals with private developers, and getting the necessary planning permission or zoning amendments from the government.

22. Progress has been slow for a number of reasons, including a soft real estate market between 1989 and 1991. But apparently a major problem is LDC's difficulty in assembling land for projects. Despite the fact that between 1986 and 1988 many small developers and real estate agents acquired land in targeted redevelopment areas in anticipation of the creation of LDC, the agency has not attempted to structure joint ventures with landowners. Because of the decade-long deadlock between two groups of owners of residential and commercial properties in formulating an acceptable profit-sharing formula in the Four-Street comprehensive redevelopment proposal in Tsim Sha Tsui, LDC has ruled out the option that affected property owners can participate as partners or shareholder in redevelopment schemes. Rather, LDC prefers to purchase the properties by negotiation and pay cash. This obviously is not what many developers and owners have in mind.

23. Relocation and resettlement of affected tenants and owners is also a continuing problem for LDC. One problem is that there are few opportunities for resettling residents in nearby housing sites, and most households are offered units in distant new town areas. Relocation of shop-operators is extremely difficult, especially when vibrant street activities are demolished and replaced with modern high-rise housing and mixed-use blocks. Unlike China, households are not provided with in-kind replacement of units. Tenants renting units are expected to pay market rents if they relocate to new housing redeveloped on site. Since LDC has been set up as an independent agency outside the government, it receives no support from the Housing Authority in terms of finding replacement housing. Displaced tenants merely go to the end of the Hong Kong Housing Authority waiting list. This seems like an obvious problem, and it sharply contrasts with the redevelopment practices in Singapore, and the role played by the Seoul Metropolitan Government to assist displaced tenants in private redevelopment projects.

24. In Hong Kong, redevelopment policies have apparently gone too far toward a laissez faire posture. LDC has limited powers in terms of land acquisition, and relocation. Instead, it must operate much like a private

developer. In Seoul, a similar evolution of redevelopment has taken place, with the government getting out of the business of active redevelopment.

C. Seoul

25. Urban redevelopment in Korea has been extensive, reflecting the tremendous rates of urbanization experienced in the country. Between 1950 and 1983, Korea's urban population increased from 26.7 percent of the total population to 72.1 percent. Land readjustment has been used extensively in Seoul since 1937 as a means of modernizing urban spatial structure. Between 1937 and 1984, 13,984 hectares of land in the city of Seoul have gone through land readjustment. This accounts for 40 percent of the total urbanized land area in the metropolitan area in 1985.

26. In the early years, before the Korean Conflict, projects were financed largely through government budget and by allotments from landowners. Projects typically were smaller than 100 hectares. After the war, projects were restarted and massive redevelopment of damaged areas took place. Up until the 1960s, the focus of redevelopment centered on restructuring the central city area. In the 1970s, redevelopment focus shifted toward the production of large-scale housing to accommodate massive urbanization.

27. In Korea, major cities over 1,000,000 in population are required to prepare comprehensive redevelopment plans. In actual practice, only Seoul complies with the law, having prepared detailed planning studies for redevelopment and carried out redevelopment. According to researchers at the Korea Research Institute on Human Settlements (KRIHS), the national law of redevelopment is vague and does not precisely define blight, but surveys of urban areas which examine physical conditions, public health and safety conditions, and building densities and ratios of land to building values are required before establishing redevelopment districts.

28. The redevelopment law defines six criteria for designating a renewal district:

- (a) more than two thirds of buildings in the district are under the height of the lowest-height limit in the district;
- (b) more than two thirds of buildings in the district do not follow fire prevention codes;
- (c) more than two thirds of buildings in the district are below two stories and not constructed of fireproof materials;
- (d) land parcels are too small and/or irregular and difficult to utilize;
- (e) buildings are worn out or deteriorated; and
- (f) dense residential areas are intermixed with industrial areas.

29. According to national law, cities are to prepare and follow annual implementation plans and city government agencies are responsible for imple-

mentation. Once the city government has designated a redevelopment district, redevelopment projects can be executed by either: (a) district associations or unions; (b) municipal government; and (c) public development corporations such as the Korea Land Development Corporation or the National Housing Corporation. In the past, the municipal government and the Korea Land Development Corporation were extremely active in redevelopment, using their powers of condemnation to acquire land and buildings. In recent years, there has been considerable public backlash to urban redevelopment and both the local government and KLDC have backed away from initiating redevelopment programs, especially controversial ones. While the government still prepares plans for urban redevelopment, it relies on property owners to actually implement the plans.

30. To implement redevelopment programs, property owners form a landowner's association or union. If two thirds of the property owners in the area agree to participate in the redevelopment, then the union is given the power of eminent domain. However, these powers are not often used and owners negotiate with reluctant neighbors to join the scheme. Apparently, it is common practice for these reluctant owners to be compensated so that they support redevelopment projects. When there is full support for the redevelopment, the union submits a redevelopment scheme to the local government for approval. The front-end cost for preparing these schemes and compensating reluctant owners is often paid for by a developer or contractor who will actually carry out the project. In most cases, low-rise buildings, either squatter settlements or single-family dwelling units, are demolished and new apartment buildings constructed. Most plans call for significant increases in building densities. In older areas of Seoul where typical FARs are below 1:1, redevelopment schemes generally call for increasing the FAR to 1:1.5 to 1:2.0 and higher. In addition, they must follow statutory requirements regarding determination of housing allotment, management plan and provision of public facilities.

31. In exchange for the contribution of land, owners are allocated new units, and the precise level of compensation depends on the value of their property. In some cases, owners receive more than one unit. However, in other cases, owners of very small plots or squatter houses must pay additional monies to make up the difference between the value of their contributed land and the full development cost of the new unit. If the owners cannot afford to make this payment, they are cashed-out and move to a new area, usually in the suburbs.

32. Owners of properties normally are able to return to the site and during the construction phase, the developer pays them compensation for temporary relocation (in 1991 the typical payment was 600,000 Won (\$770) per household member). Project financing is the responsibility of the union. However, if demolished units are occupied by nonowner tenants, the owner must negotiate with the tenant and pay some form of compensation. This is evidently where difficulties arise.

33. The redevelopment law provides that compensation be paid to qualified tenants who are forced to relocate. The compensation can take two forms: dwelling unit expense payment or a permanent tenant housing ticket. The local government currently has 6,167 housing units available in 13 suburban districts which may be allocated to displaced residents. Tenants not allocated

municipal receive a dwelling settlement expense payment. Based on the average monthly per capita housing expense of Seoul residents, each household member is to receive three months' compensation. In addition, each household receives compensation for moving expenses.

34. Since 1976, 423 projects have been targeted for redevelopment nationwide. To date, 99 sites have been redeveloped, 50 sites are under way, and 274 sites have not been started. The lack of progress on the 274 sites is due to a lack of money, no developer or contractor interest and conflicts between owners.

35. In Seoul, as of May 1991, a cumulative total of 140 projects have been targeted for redevelopment. As of the date, 37 projects have been completed covering a total 930,016 m<sup>2</sup> of constructed area. Forty projects are currently under redevelopment, covering 1,843,177 m<sup>2</sup> of constructed area. Another 63 projects covering 4,180,539 m<sup>2</sup> are targeted for future redevelopment. Considerable redevelopment took place prior to the Olympics, and between 1984 and 1987, 42 areas were designated for redevelopment. The total number of redevelopment housing units planned for Seoul (in the 140 projects) is 68,874. Between 1984 and 1987, 15,897 units were produced.

36. Most of the completed redevelopment areas were areas with a high percentage of government landownership; in areas with high incidence of private ownership, difficulties developed in obtaining agreement to proceed with redevelopment. Areas with higher rates of squatter housing are more likely to be redeveloped than others. Completed redevelopment project areas had an average of 82 percent squatter housing. In areas which have not advanced, the average is 65 percent. Incidence of tenants also affects the likelihood of redevelopment. In completed areas, tenancy averaged 40 percent; in areas not started, 75 percent of residents are tenants.

37. In Seoul, redevelopment activities have brought about a marked decrease in slum housing. In 1970, 187,554 dwelling units were located in slum areas and accounted for 32.1 percent of the total housing stock in the metropolitan area. By 1985, the total number of slum houses had been reduced in absolute terms to 125,439 units, accounting for 10.6 percent of the housing stock.

38. Housing conditions in areas targeted for redevelopment are similar to those found in other Asian cities: high housing densities, poor housing conditions, lack of facilities and overcrowding. The living area per capita is low, ranging from 5 to 10 m<sup>2</sup> per person. Most slum area housing conditions are poor and units lack kitchens and indoor toilet facilities. Units average between 1.5 to 2.3 rooms, and many lack separate entrances.

39. After redevelopment, housing conditions for those households returning are vastly improved. In the completed areas, typical units are 109 m<sup>2</sup>, about three times the size of original units. In 1991, SMG passed a new ordinance reducing the size of replacement housing units in order to lower costs and housing prices.

40. Creation of property owner unions to carry out urban redevelopment projects is novel and warrants further consideration. However, it is not

without limitations or problems. A recent assessment of the Housing Renewal Program conducted by KRIHS recommends a number of modifications to the program:

- (a) provide replacement housing before demolition starts and more directly link union activities with those of public housing authorities;
- (b) the central government should subsidize the provision of public housing for displaced tenants;
- (c) redevelopment schemes should be required to provide small-sized affordable housing units for low-income residents;
- (d) all cities over one million in population should be required to prepare a master plan for housing renewal;
- (e) standards for designating renewal areas should be more precise and clear;
- (f) separate laws for residential and nonresidential redevelopment should be enacted;
- (g) a fund should be established to support union renewal activities; and
- (h) a time limit should be set for the designation of a renewal area.

#### D. Singapore

41. In 1963, with support from the United Nations Development Program, Singapore prepared its first master plan. The plan noted the dangerous and insalubrious conditions of older central areas, and called for redevelopment of these older areas. This marked the beginning of redevelopment in the City.

42. Large-scale redevelopment in Singapore began during the 1960s and it still continues, in modified form, today. The process of redevelopment can be divided into three phases: I (1960s), II (1970s), and III (1980s to present). The key element in the redevelopment process is that sitting tenants are relocated and are rarely offered the opportunity to return to redeveloped properties.

43. Control of land is obtained through Singapore's Compulsory Land Acquisition powers. Under the law, Urban Redevelopment Authority (URA) can acquire land for public purpose; owners of the to-be-acquired properties cannot challenge the acquisition process. They can, however, challenge the level of compensation offered for the properties.

44. Tenants of acquired properties are subject to relocation. This includes residential, commercial and industrial uses. The process of relocation is complicated by the fact that the British enacted rent control in 1947, with rents based on 1939 rents. This placed the rents of sitting tenants at

very low levels and created a broad differential between pre- and post-relocation rents.

Commercial and Industrial Relocation

45. In the initial stage of relocation, the government built "transit facilities" around areas to be redeveloped. For commercial (shophouse) activities, these facilities were rows of new, but temporary wooden buildings. Small businesses targeted for relocation were offered space in the transit facilities. Because of the hardships caused by the relocation (principally the loss of "street presence"), merchants were offered below-market rents. Before relocation, tenants paid rents of below S\$1/m<sup>2</sup>/month--reflecting the rent control policies. After relocation, they were offered a five-year subsidy on rents. Table 1 illustrates the pattern of rent subsidies offered to commercial tenants in the 1960s, 1970s and 1980s. Note the basic market rent is reduced by 10 percent before the subsidy is calculated.

Table 1: COMMERCIAL RENT SCHEDULES FOR MARKET, AND SUBSIDIZED TENANTS, 1960, 1970 AND 1980 LOCATING IN " TRANSIT FACILITIES" (S\$/m<sup>2</sup>)

	1960	1970	1980
Market Rent	2.00	5.00	8.00
Basic 10% Discount	1.80	4.50	7.20
Gradual Discount:			
1st year	0.90	2.25	3.60
2nd year	1.08	2.70	4.32
3rd year	1.26	3.15	5.04
4th year	1.44	3.60	5.76
5th year	1.62	4.05	6.48
6th year	1.80	4.50	7.20

46. In the 1970s, the transit facilities became permanent and were constructed of concrete, although lacking air conditioning and escalators. They were multistory (5) and were sited near redevelopment areas. The same gradual rent subsidy was offered, but the market base rent was S\$5.00. In the early 1980s, the third stage of transit facilities was developed: these were essentially shopping centers, equipped with escalators and air conditioning. The market rents for these facilities was S\$8.00/m<sup>2</sup>/month.

47. In 1985, transit facilities were no longer provided; instead, shopkeepers were provided with a cash grant compensation. In 1985, the amount per shophouse structure (for permanent structures of under 200 m<sup>2</sup>) was S\$58,000. In 1987, this amount was raised to S\$76,000, where it remains. Permanent structures of over 200 m<sup>2</sup> now receive S\$101,000. Currently, small shops in transit facilities receive S\$26,000. According to URA staff, the cash compensation system is well received by shopkeepers. There are few complaints with the payment and the shopkeepers can relocate to any building they wish.

### Industrial Uses

48. First, it is important to point out that Singapore developed as a trading center and it did not have the massive industrial base that is common to Shanghai, Tianjin or Guangzhou. Consequently, there was little industrial relocation in Singapore. For the industrial development taking place, the government built industrial estates on the outskirts of the city and relocated firms to them, using exactly the same process and subsidy arrangement as outlined above for commercial uses. In 1985, the government ceased constructing industrial estates for redevelopment relocation purposes and instead offered cash compensation for industrial enterprises being relocated. In 1985, the cash grant was S\$26,000 per facility, and was raised to S\$34,000 in 1987, where it remains.

### Residential Uses

49. In 1960, the Singapore government commenced its program of public housing construction, building 10-story elevator-serviced buildings. Back then, rents were S\$20 a month for a one-room unit, S\$40 for a two-room unit, and S\$60 a month for a three-room unit. In addition, tenants paid S\$3-6 a month for services. In the old rent-controlled residential areas, tenants normally paid about S\$10 per month rent for a one-room unit of low quality. These units averaged 10 m<sup>2</sup> in size. The new units that households moved into averaged 60-70 m<sup>2</sup>. For relocation hardships, tenants receive S\$3,000 per family and S\$750 per individual.

50. Virtually no one returns to the area after redevelopment. Under the current system of homeownership and the Central Provident Fund, those tenants that are relocated can "jump the queue" and gain access to the Housing and Development Board (HDB) housing being sold.

51. On financing of infrastructure, all off-site services are provided by the URA, not the developer. The developer is responsible for all on-site infrastructure. In addition, the government authorizes the levying of a development charge on privately held lands that is to be used in a way that is essentially different from the purposes for which the ground was originally used.

52. Between 1971 and 1980, 3,464 farmers were resettled. Of these, 1,983 received units, 574 received land, and 341 found their own accommodation and received cash compensation. The remainder, 566, received cash compensation. In the central area, between 1974 and 1985, 6,007 nonresidential users were relocated (300 in 1975/76, 941 in 1984/85). Most found their own relocation--4,075--and half received a cash grant. The rest received HDB compensation. Table 2 provides a good indication of relocation activities in Singapore. It compares cleared relocation cases, for both residential and commercial users, with total constructed units. Up until 1982, the total is based on HDB output (it excludes units produced by the Housing and Urban Development Corporation). After 1982, the total construction output reflects both the HDB and the URA. The level of activity is considerable, and it clearly surpasses what took place in US cities. It certainly is far above redevelopment activity in West European cities from the 1970s onward. It might equal activities in the immediate post-war period.

Table 2: SINGAPORE REDEVELOPMENT RELOCATION ACTIVITY

Year	Total units		Percent cases/constructed
	Cases cleared	Constructed	
1961	294	7,320	4.0
1962	817	12,230	6.7
1963	1,181	10,085	11.7
1964	3,643	13,028	28.0
1965	6,510	10,085	64.6
1966	6,018	12,659	47.5
1967	5,984	12,098	49.5
1968	5,863	14,135	41.5
1969	6,519	13,096	49.8
1970	6,125	14,251	43.0
1971	3,882	16,147	24.0
1972	4,060	20,252	20.0
1973/74	12,067	23,224	52.0
1974/75	10,980	26,169	42.0
1975/76	12,011	28,027	42.9
1976/77	11,015	30,024	36.7
1977/78	15,018	30,406	49.4
1978/79	16,443	30,176	54.5
1979/80	18,052	27,189	66.4
1980/81	15,033	19,875	75.6
1981/82	12,665	16,366	77.4
1982/83	14,855	20,918	71.0
1983/84	17,868	42,400/a	42.1
1984/85	21,958	70,345/a	31.2
1989/90	2,107	11,979/a	17.6
1990/91	3,151	13,805/a	22.8

/a Includes units from URA built after 1982.

Housing Development Board, Government of Singapore

53. Singapore's HDB is in its second generation of redevelopment. The initial period, starting shortly after it was granted independence in 1959, was directed toward the rapid redevelopment of slum and squatter areas in and around the city center. In the initial stages, the units were mostly occupied by tenants without title or they were rented from landlords.

54. In 1960, Singapore had a quarter of a million persons living in slum areas, and another 330,000 living in squatter areas. Most of the slum areas were in and around the central area and were covered by rent control. Most units were severely dilapidated and slum landownership was highly fragmented, making land assembly difficult. Furthermore, rent control provided no incentive. In short, private redevelopment was impossible.

55. In response, the government amended its compulsory land acquisition powers and began taking steps to acquire land for redevelopment. Under the 1973 Land Acquisition Act, the compensation for acquired land as provided for in the Act is the market value of land as of November 30, 1973 or at the date of Gazette Notification, whichever is lower, to ensure that the cost of compensation will not fluctuate too widely. Market value is determined on the basis of the existing use or the zoning of the land, whichever is lower. The potential future value of the land in some more intensive use is not considered. These strict measures were imposed to curb speculation and to curtail the rising cost of land acquisition the government was experiencing in the 1970s as it aggressively purchased land.

56. In 1981, the Land Acquisition Act was again modified, and now owners of private property are paid up to the market value of the property or S\$600,000 whichever is less. (This is in sharp contrast to Hong Kong's policy that LDC must negotiate the purchase of land in designated redevelopment areas, and only if all avenues have been exhausted will the government step in to compulsorily acquire land.)

57. The process of compulsory land acquisition begins with a proposal for acquisition, which is made by the HDB or other government authority. These proposals are carefully scrutinized by government and go through multiple reviews. After the approval is given by the President, it is gazetted. Next, the acquisition proceedings commence. Owners can appeal, and take their case to the Appeals Board.

58. The acquisition process is complemented by a resettlement program. In principle, every household requiring relocation is offered alternative accommodation. In 1957, a Resettlement Department was established to handle relocation and resettlement. Since its inception in March 1985, 230,000 resettlement cases have been cleared.

#### Second-Stage Redevelopment--Upgrading Old HDB Projects

59. Starting in 1980, HDB began redeveloping some of its older rental projects which do not measure up to present housing estate standards. Specific projects are those that have a high portion of three-room units and have high vacancy rates. The process of redevelopment of these areas is programmed over a 140-week cycle.

60. In these outdated projects, many tenants have moved out to purchase larger flats, and in some cases the vacancy rate is 50 percent. Those who remain are typically the elderly and have low incomes. Since these sitting tenants have week-to-week tenancy, they are served notice of the intention of HDB to redevelop the area. They are offered the choice of moving to another rental flat, or purchasing a new unit. There is never any guarantee that the sitting tenant will be permitted to return to the site.

61. Of the sitting tenants, approximately 50 percent opt to purchase a flat. They are provided some incentives: they can obtain 95 percent financing as opposed to 80 percent when purchasing a three-room unit (90 percent financing for four- to five-room units). They pay the going rate for the

unit; they do not get a price discount; and the interest rate and the term of the mortgage is the same as for other qualified Singapore citizens.

62. Given that the typical price of a three-room unit ranges from S\$22,700 in new towns to S\$36,200 in the city center, that the interest rate is 4.64 percent, and that the term of the mortgages is 25 years, these low-income elderly households would need to pay between S\$121.60 and S\$193.89 per month for new three-room units. While these mortgage terms are attractive, they are well above the current rents for three-room units--S\$26.00 to S\$33.00 per month. Consequently, about half of the sitting tenants choose to relocate to other rental accommodations.

63. Commercial shops located in HDB projects to be redeveloped are not provided with relocation assistance. Instead, they receive a cash compensation of S\$38,000 per shop. They receive modest preferential treatment in seeking new locations in HDB new towns or in other redeveloped areas. While they must compete with other businesses in the normal tender process used to secure space, their tender bid is increased by a 10 percent "preferential margin."

64. In the 1960s, when the redevelopment of slum and squatter areas was in full swing, many shops were relocated to HDB projects. This turned out to be problematic and many of the shops failed because they were inappropriate for the neighborhood-oriented centers or simply because too many shops were programmed into the early HDB centers.

65. In light of these failures and recognition of serious design problems resulting from the programming of retail activities into ground-floor apartment blocks, HDB restructured the planning and programming of commercial spaces. First, in reflection of the changing patterns of shopping behavior, where households go to large shopping centers to do their comparison and fashion goods shopping, commercial space in neighborhoods has been down-scaled to include only convenience goods stores. Second, because of design problems related to user conflicts, commercial activities in HDB centers have been consolidated into stand-alone centers. This redesign has solved space usage conflicts, and it also allows for these commercial centers to be located on the edges of projects to attract patrons traveling on arterial streets.

#### E. Resettlement Policy

66. Of the three cities surveyed, Singapore has the most effective program of resettlement. Affected households in HDB housing redevelopment projects are provided with the option of taking either replacement rental housing, or the purchase of a new unit. Households having huts and improvements are provided with cash compensation for the loss of their assets, and they receive a disturbance/transportation allowance. The system of compensation seem to be well received, and there is a high incidence of households opting for purchase of new units. Between 1974 and 1985, the percentage of all redevelopment resettlement households opting to purchase new units increased from 59 to 92 percent (however, the current rate in the old HDB project redevelopments is lower--50 percent).

67. By combining a effective resettlement program with an aggressive housing delivery system, Singapore's HDB and URA have made impressive strides in urban redevelopment. They have been able to skillfully balance public and community interests with those of the private sector. Such a model is worthy of further in-depth assessment to gauge its potential applicability in the People's Republic of China.

CHINA

URBAN LAND MANAGEMENT: OPTIONS FOR AN EMERGING MARKET ECONOMY

Assessing the Financial Performance of Residential Redevelopment Projects

A. Introduction

1. The redevelopment of residential areas in Chinese cities is closely regulated by local and provincial authorities. In virtually all cities surveyed, redevelopment corporations must have the prices of newly constructed housing units targeted for the domestic market approved by the local price bureaus. These price reviews are very thorough and, in most cities, the prices of new units are set on a cost plus profit basis. Thus, the actual profitability of a typical redevelopment project is regulated. However, in virtually all cases, the sales price of the domestically sold housing is set at that level which will generate enough revenues to fully finance the redevelopment project.

2. The policy followed in most redevelopment projects is to set the price of commodity housing at that level where costs are recovered, including a modest markup for profit. In cities where generous on-site replacement of demolished housing is the norm, the markup is enormous, and can reach 300 percent. As illustrated in Table 1, the break-even prices of commodity housing vary considerably across redevelopment projects, ranging from a low of Y 641 for Tianjin's Pingshan Road project, to Y 5,611 for the overseas-oriented Hui Yi project in Shanghai. The average break-even sales price, excluding the Hui Yi project, is Y 1,974/m<sup>2</sup>. The average cost of construction for these same 10 projects is Y 1,072/m<sup>2</sup>. Thus, the break-even price for these 10 projects is 1.84 times above the actual cost of construction and profit. The markup to recover total project costs implies that the purchasers of commodity housing units pay an average of 84 percent over the average cost (plus profit) of redevelopment projects.

3. The typical approach to pricing and cost recovery reflects the absence of long-term financing for real estate development and the failure of rents to cover the real capital costs of new construction. The only way to pay for replacement units, given the government policies outlined in Annex 9, is for the REDC to recover the costs from those who can pay--the purchasers of commodity housing. This strategy produces two serious problems which limit its long-term sustainability. First, there are enormous distributional questions associated with the cost recovery. Should purchasers of new units pay inflated prices for their units in order to finance replacement for existing residents of these redevelopment areas? What are the implications of having enterprises (the dominant purchasers of commodity housing in redevelopment projects) finance the replacement of old municipal and privately owned housing in inner-city areas? Why should the workers of one enterprise subsidize the housing of other enterprises?

4. The second problem generated by the pricing strategy is that, in some cases, enterprises or individuals are not willing to pay the inflated

**Table 1: BREAK-EVEN PRICES FOR COMMODITY HOUSING IN REDEVELOPMENT PROJECTS**

Project name	Percent on-site resettlement (%)	Break-even price of housing/m <sup>2</sup> (Yuan)	Average construction cost/m <sup>2</sup> (Yuan)	Ratio of break-even price to cost (%)
An Deng	0	877	473	185
Jin Hua	90	2,592	1,006	258
Xiao Fuqing	100	1,559	454	343
Jian Guo	0	3,154	3,000	105
Hu Lang	100	3,727	2,218	168
Hui Yi	0	5,611	5,611	100
Ordinary Citizen	90	2,320	1,200	193
Tian He	45	1,924	850	226
Ying Xiang	86	1,744	808	216
Pingshan	100	641	324	198
Wujiayao	100	1,210	387	313
Average		2,305	1,485	155
Average without Hui Yi		1,974	1,072	184

Source: Redevelopment Project Survey, 1991, 1992.

prices. This is because they can avoid the costs by purchasing housing in greenfield areas where there are no redevelopment costs to shoulder. In some cases, they may even build their own housing. In market economies, it would be extremely difficult for the developers of inner-city redevelopment projects to simply pass on the costs of replacement housing, because they face price and product competition from other developers.

5. In Shanghai, there are four channels of housing supply: apartments built by property development companies which are put directly on the market (typically these units are located in suburban and "greenfield areas"); apartments invested in by the government which will be allocated as welfare or sold to government employees; apartments built by government bodies which will be allocated to employees of government and the apartment construction company building the project; commodity housing produced in redevelopment projects which can sold to individuals and enterprises. Government agencies can clearly avoid paying higher prices by developing their own projects. Enterprises have the option to purchase units in either redevelopment or new-area projects. The current price differential for units in inner urban areas is nearly 100 percent, and as a result, unless the redevelopment project is extremely well-located, enterprises and individuals will opt for lower-cost suburban housing.

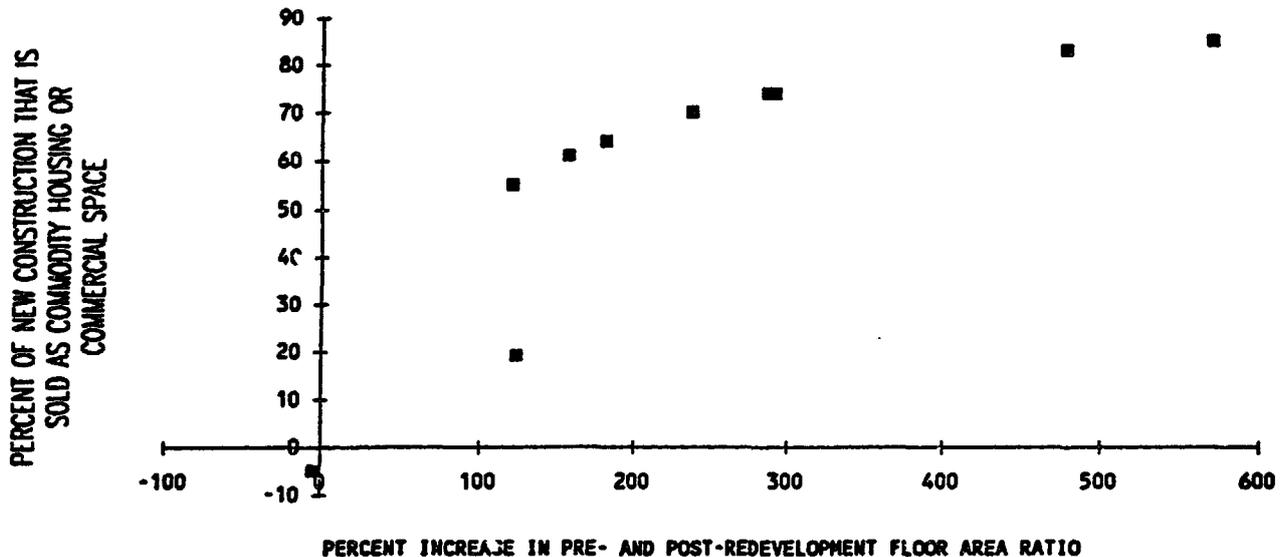
6. Why is there such tremendous variation between the average cost of redevelopment projects and the break-even sales prices of these redevelopment projects? In this section, we will assess price cost variations and describe what factors influence high commodity housing prices. The focus of the

assessment is on FAR, replacement space standards, on-site versus off-site replacement, provision of public facilities and payment of fees and taxes.

**B. Floor Area Ratio and Redevelopment Cost and Financing**

7. Based on a review of redevelopment projects and the financial simulation of redevelopment project cost and potential revenue generation it is apparent that the floor area ratio of new redevelopment projects is the single-most important determinant of redevelopment project feasibility. The greater the increase in FAR, the more commodity housing and commercial space can be built on a redeveloped site. Using data for 10 of the 11 surveyed redevelopment projects, Figure 1 illustrates this relationship. As it shows, the percentage of a new redevelopment's constructed area going to commodity sales space increases with the increase in postredevelopment FAR. The more additional space that can be built, the more commodity space a developer will have to sell. With more space, the break-even commodity housing price can be reduced and brought closer to the actual cost of the project.

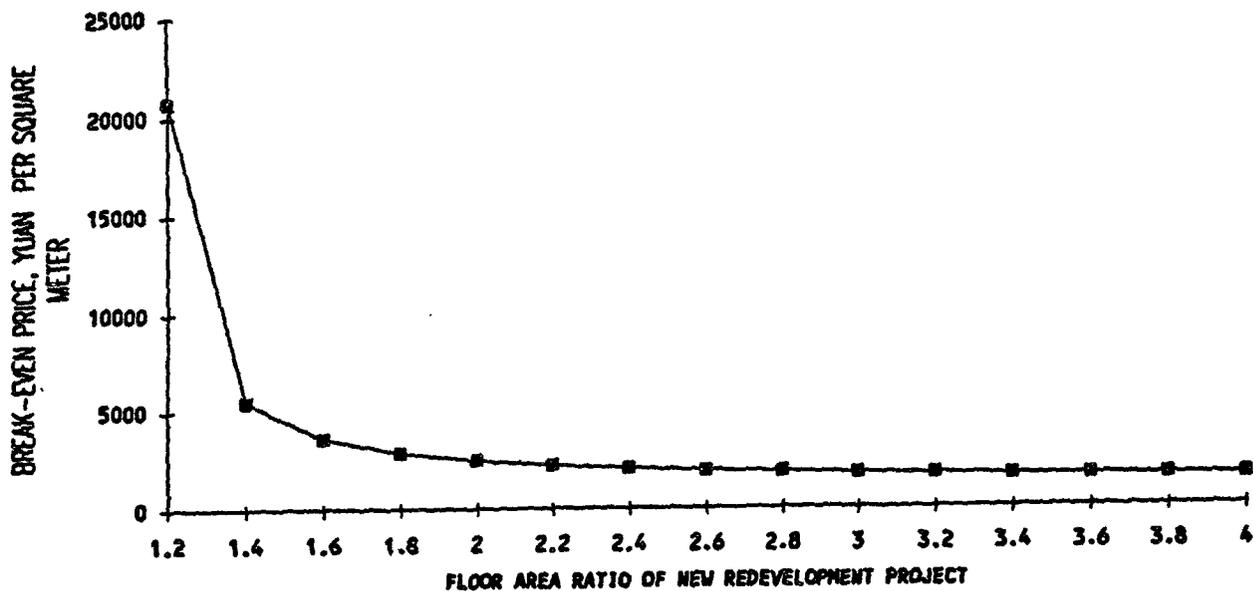
**Figure 1: RELATIONSHIP BETWEEN INCREASE IN FAR AND THE PERCENT OF NEW CONSTRUCTION THAT IS SOLD AS COMMODITY HOUSING OR COMMERCIAL SPACE**



8. Figure 2 illustrates the impact of increasing FAR on the break-even price of commodity space. This figure is based on simulation test results of a financial model developed for a typical redevelopment project. The project has a site area of 50,000 m<sup>2</sup>, had a preredevelopment constructed area of 40,000 m<sup>2</sup> (a FAR of 0.8). The site housed 1,086 households in a total residential constructed area of 38,000 m<sup>2</sup> (approximately 35 m<sup>2</sup> per unit). It also contained 2,000 m<sup>2</sup> of public facilities. The postredevelopment simulation (baseline case) assumes that the site is redeveloped to a FAR of 2.0 and con-

tains 100,000 m<sup>2</sup> of constructed space. Reflecting practices in many cities, the simulation assumes that all households are resettled on-site and that each household receives an average of 50 m<sup>2</sup> of constructed area for a total area of 54,300 m<sup>2</sup>. Additional public facilities are constructed to reach 5,000 m<sup>2</sup>. After these allocations are made, there is an additional 40,700 m<sup>2</sup> of commodity space. Total average construction costs (both hard and soft costs) are assumed to average Y 1,000/m<sup>2</sup>.

**Figure 2: BREAK-EVEN SALES PRICE BY FLOOR AREA RATIO FOR PROTOTYPICAL REDEVELOPMENT PROJECT**



9. In Figure 2, it is assumed that the FAR of the redevelopment project varies from 1.2 to 4.0. As the graph illustrates, the break-even sales price from the project declines as the FAR increases. This decline reflects the fact that increases in FAR raise the portion of constructed area that can be sold as commodity space. However, the overall price structure of a typical project is also determined by other factors as well. In the next section, we consider the replacement policies of government in terms of the area of new space provided for each square meter of sold area.

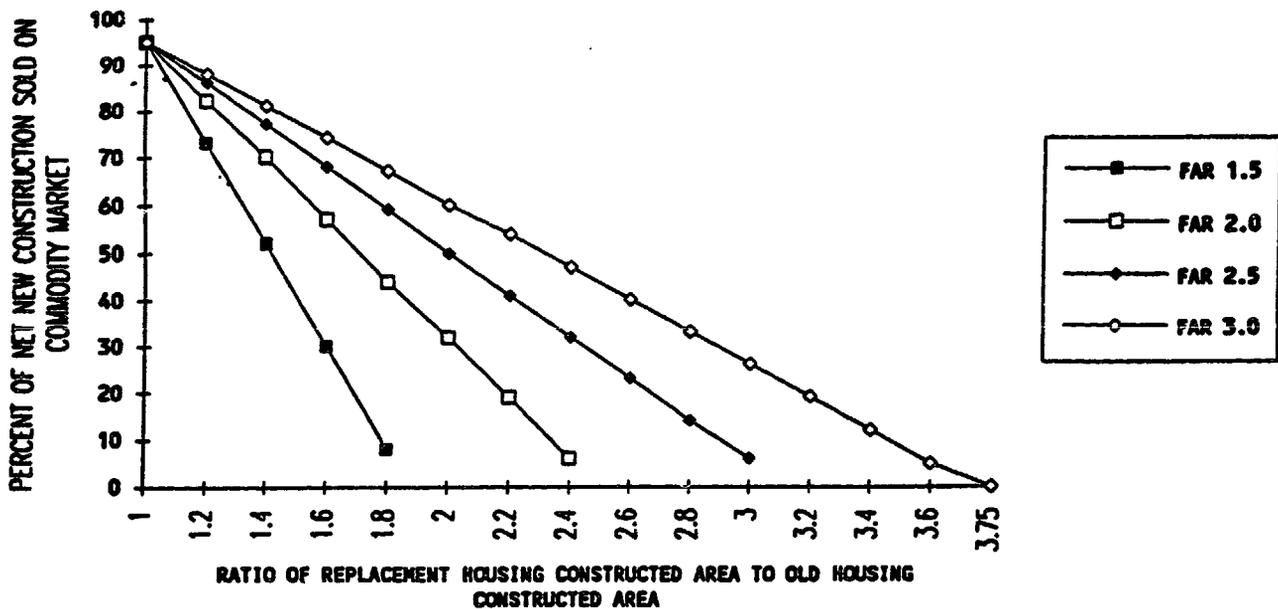
**C. Replacement Space Standard.**

10. Discussions with housing planners and government official across China reveal a preoccupation with the per capita living area and constructed area. In most cities, housing policies are targeted on goals aimed at increasing per capita residential areas. As described above, in most redevelopment areas per capita space is limited and there is considerable overcrowding. For projects where most households were resettled on-site, the size of preredevelopment dwelling units ranged from 14 to 50 m<sup>2</sup>, averaging about 31 m<sup>2</sup>

per unit. After redevelopment, on-site space allocations increased to an average of 59 m<sup>2</sup>, a 90 percent increase. Only in the case of Guangzhou's Jin Hua redevelopment project were space allocations reduced after redevelopment from 44 to 42 m<sup>2</sup>.

11. The degree to which more space is allocated to tenants receiving on-site replacement housing will significantly effect the break-even prices of commodity housing. For a given level of total constructed area (set by planning and development controls), there will be less commodity space for sale as the amount of replacement housing space increases. Figure 3 illustrates the relationship between space allocation standards and the portion of net new space sold on the commodity market. As the graph illustrates, as the ratio of replacement space for old housing space increases, the percentage of a redevelopment project's net new constructed area which can be developed decreases. The rate of decrease is faster with lower levels of FAR.

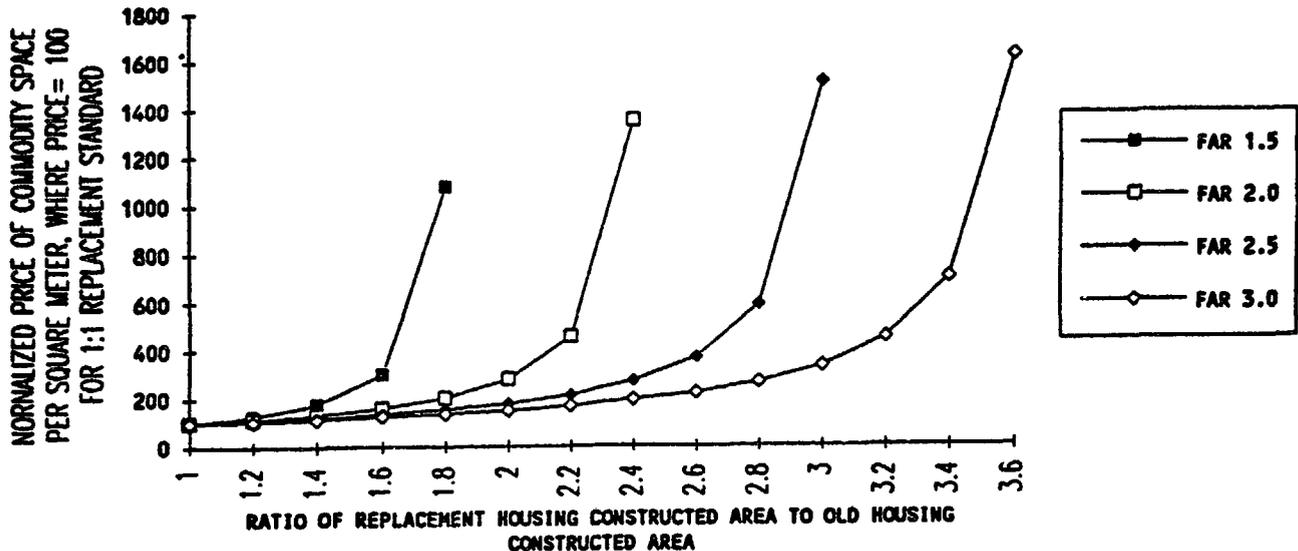
**Figure 3: RELATIONSHIP BETWEEN REPLACEMENT SPACE STANDARDS AND THE PORTION OF NET NEW CONSTRUCTION SOLD ON COMMODITY MARKET**



12. The impact of space allocation policies on the portion of commodity space in a project directly effects the break-even sales price of the commodity housing. In Figure 4, simulations of variations in break-even prices are provided for a range of replacement of housing policies. The prices have been normalized, with the break-even price set to equal 100 when the replacement ratio is 1:1. The figure vividly illustrates the price implications of offering generous replacement space standards, assuming that all replacement housing is to be financed through commodity sales. Depending on the FAR of the redevelopment project, prices rise dramatically when the replacement ratio increases beyond 1.6, 2.2, 2.8 and 3.4 for FARs of 1.5, 2.0, 2.5 and 3.0,

respectively. In cases where considerable additional housing needs to be provided and resettlement is to occur on-site, the FAR will need to be increased, probably doubled or tripled. In cases where such increases in FAR are not feasible, then redevelopment planners should consider relocating households to other sites. The next section assesses the cost implications of off-site relocation.

**Figure 4: RELATIONSHIP BETWEEN REPLACEMENT SPACE STANDARDS AND BREAK-EVEN SALES PRICE OF COMMODITY SPACE FOR VARIOUS FARs**



**D. On-Site Versus Off-Site Housing Replacement**

13. In most redevelopment projects, considerable, if not all, households are provided with on-site replacement housing. Such a policy is extremely burdensome for several reasons. If a site has a higher potential use, say for commercial offices or retail facilities, it will always be financially advantageous to resettle households off-site, since all space in the new project could be sold at considerably higher prices. But even under circumstances where the housing units are replaced and where the sales price of commodity housing in such projects is strictly limited to a price which achieves cost recovery, it may still be advantageous for most households to be resettled off-site. By shifting the replacement housing to off-site locations, redevelopment projects can increase the percentage of new construction devoted to commodity sales. On the other hand, off-site replacement housing requires the purchase of land and buildings for resettlement and it may or may not be less expensive to provide than on-site units.

14. If off-site replacement housing can be provided for sitting tenants less expensively than on-site provision, it will always be financially advan-

tageous for redevelopment area households to be relocated off-site. Off-site replacement costs are usually lower per square meter than on-site cost because the housing is usually of lower density (six-story versus high-rise) and built with lower-cost materials. Another reason is that off-site relocation does not require the provision of temporary housing or relocation benefits. On pure cost terms, off-site relocation can be less expensive if it avoids building high-rise structures and if suburban land costs are low.

15. In the Shanghai Jian Guo redevelopment project, all households were relocated off-site. The 1,394 households, which had an average of 15 m<sup>2</sup> of constructed area were allocated 60 m<sup>2</sup>, a total of 83,640 m<sup>2</sup>. The cost of the relocation was Y 79,458,000, an average of Y 950/m<sup>2</sup>. The total cost of constructing new space on the site was Y 176,091,200, an average of Y 1,992/m<sup>2</sup>. In inner-city redevelopment projects, like Jian Guo, households are relocated to suburban projects and housed in six- to eight-story walkup buildings.

16. However, in order to successfully implement off-site relocation, REDCs must offer a variety of inducements to encourage relocation. The most common form of inducement is to increase the allocation of replacement space to households electing to relocate. For example, in Shanghai and Guangzhou, households agreeing to relocate to suburban areas will be provided with an additional 20 to 30 percent more space, depending on household size, crowding and the initial amount of space. These additional inducements can reduce the financial benefits of promoting off-site relocation by increasing the size and, thus, the cost of off-site housing. While these inducements are appropriate, under the current form of pricing and allocation, they may completely offset the economic benefits of increased off-site relocation.

17. To assess the benefits and costs of off-site versus on-site relocation, the baseline redevelopment project outlined above was used to simulate the effects of variations in the percentage of on-site replacement housing provided. A number of simulations were prepared, reflecting differing assumptions regarding on-site versus off-site construction costs, and how much additional space is provided to those agreeing to relocate to off-site locations. Twelve separate simulations were run, and their results are presented in Figures 5 and 6. Figure 5 assumes that residents agreeing to relocate off-site will receive a space allocation bonus of 25 percent. Figure 6 assumes that off-site resettlers receive a 50 percent space bonus. Both figures provide break-even price estimates for three overall housing replacement policies and two different cost differentials between on-site and off-site housing construction. The three replacement policies assume a replacement ratio of 1:1, 1:2 and 1:3. Six of 12 simulations assume that the costs of housing replacement are the same for both on-site and off-site locations, and six assume that off-site costs are 50 percent of on-site housing construction costs.

18. The results of the simulations reveal that, in all cases, the break-even prices of commodity space increase with the percentage of residents resettled on site. Redevelopment projects, which provide generous replacement benefits to sitting tenants, can achieve the greatest cost savings by lowering the percentage of residents resettled on site. This suggests that when existing tenants are to be provided with two to three square meters of new floor area for each square meter demolished, redevelopment projects should provide little on-site resettlement.





19. These results hold even when the those agreeing to resettle off-site receive a space bonus of 25 to 50 additional space. If the overall replacement ratio is 1:2 or more, redevelopment projects should encourage off-site resettlement. The overall patterns illustrated in Figures 5 and 6 suggest that cost differentials between on-site and off-site housing construction modestly affect the impacts of on-site versus off-site resettlement. In cases where the construction costs between on- and off-site construction are similar, the benefits of shifting replacement housing off-site are less than when off-site costs are lower. It is important to point out that of the three factors assessed in the simulation, the overall replacement ratio is the critical factor determining the potential impacts of shifting replacement housing off-site. Construction cost differentials and off-site bonuses have far less impact on break-even prices.

#### E. Provision of Public Facilities

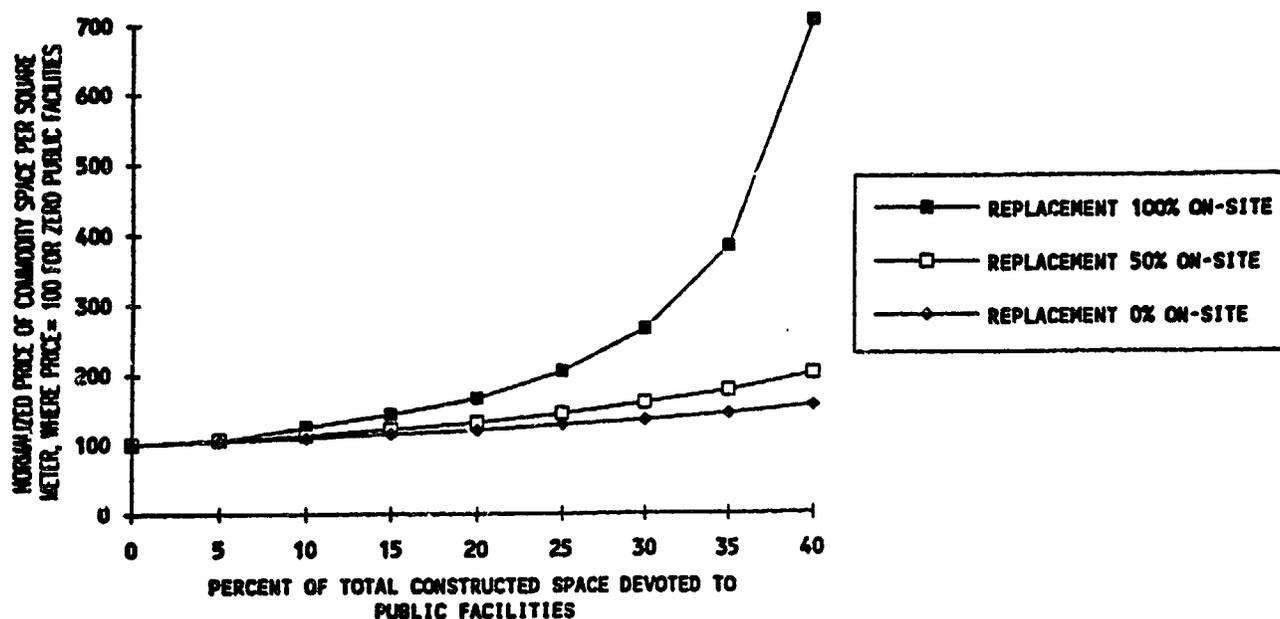
20. In many of the redevelopment projects assessed, district and municipal governments require significant contributions of public facilities. Since, in virtually all cities we assessed, these facilities are turned over free-of-charge to the local government, they represent a significant cost of redevelopment. As illustrated in Figure 7, in some of the redevelopment projects, a substantial portion of the net new space constructed went to public facilities. Of the 10 redevelopment projects, seven were required to provide public facilities. Of those projects providing public facilities, between 1,402 and 163,648 m<sup>2</sup> of space were provided, representing between 4 and 41 percent of the total net new construction. The greatest contribution both in terms of square meters and as a percent of net new space was Guangzhou's Jin Hua project.

21. In some cities, public facilities are required according to planning standards and vary between 5 and 10 percent of the constructed residential area. Planning standards for shops, clinics, schools and other facilities are somewhat greater than found in other countries, but they are not excessive. What typically occurs is that redevelopment projects are viewed as "golden geese" which can be squeezed to produce citywide services such as markets, clinic and cultural facilities. This is clearly the case in the Jin Hua project, where government planners have loaded numerous facilities onto the project. This pattern exists because the space is provided at no cost to the local government.

22. Instead the cost is shouldered by the purchasers of commodity housing. To illustrate the cost impacts of excessive public facility dedication requirements, Figure 7 illustrates the results of a simulation of break-even prices for various public facilities. Using the baseline model discussed in Annex 9, Figure 7 illustrates the change in break-even prices as the percentage of public facilities is increased. The figure reveals that break-even sales prices of commodity space increase as the percentage of public facilities required in a project increases, especially when all housing is replaced on-site.

23. Policy reforms are needed to curb the practice of redevelopment projects having to shoulder the costs of public facilities that are used by citywide residents. When such facilities are needed, the local government

**Figure 7: NORMALIZED BREAK-EVEN PRICES BY PERCENT OF TOTAL CONSTRUCTED AREA DEVOTED TO PUBLIC FACILITIES**



should pay for them and not attempt to extract the costs out of the redevelopment project. In other countries, space used for shops and markets is either sold or leased to private operators. In the case of public space, land is usually dedicated for facilities and the government is the one who actually pays for and builds the space. Most of the developers we talked to suggested that they be able to sell space for shops and markets instead of giving it over to district authorities. This is obviously an issue worth considering.

#### F. Fees and Taxes

24. All redevelopment projects are required to pay a variety of taxes and fees. In some cases, these fees and taxes are extraordinary, amounting to over 15 percent of total redevelopment costs. Table 2 presents estimates of total fees and taxes levied for the redevelopment projects surveyed in this report. As revealed in the table, the incidence of taxes and fees varies considerably across cities. In Tianjin, only token fees and taxes are charged on projects and, instead, redevelopment projects are required to provide substantial off-site infrastructure. In Fuzhou, modest taxes and fees are charged for redevelopment. In the An Deng project (the off-site resettlement project), fees and taxes amounted to about 9 percent of project costs.

25. In Guangzhou and Shanghai, there are a variety of taxes and fees which redevelopment projects must pay. In the Jin Hua project, in addition to the onerous public facility requirements, the redevelopers must also pay out nearly Y 116 million in fees and taxes, a staggering Y 546/m<sup>2</sup> of marketable area, accounting for 16 percent of total project costs. In Shanghai, all

Table 2: FEES AND TAXES PAID BY REDEVELOPMENT PROJECTS

Project name	Fees & taxes (Yuan)	As a percent of total project cost (%)	Per m <sup>2</sup> of marketable area (Yuan)
An Deng	750,000	9.3	82
Jin Hua	115,988,000	15.6	546
Xiao Fuqing	1,213,699	17.4	271
Hu Lang	12,250,000	11.0	348
Hui Yi	4,575,000	6.6	245
Ordinary Citizen	35,500,000	7.1	320
Tian He	2,090,000	12.6	275
Ying Xiang	18,800,000	12.3	214
Pingshan	14,504	0.1	1
Wujiayao	101,693	0.4	5

Source: Redevelopment Project Survey, 1991, 1992.

redevelopment projects are required to pay Y 95/m<sup>2</sup> to the Shanghai Municipal Government as an off-site infrastructure fee. Other fees and taxes increase total payments to between Y 213 to Y 555/m<sup>2</sup> of marketable space. In percentage terms, fees and taxes range from a low of 6.6 percent of total project costs to 17.4 percent.

26. It seems clear that taxes and fees account for a considerable portion of redevelopment costs. While these fees and taxes are used to support the construction of capital plant and to provide services of benefit to redevelopment area residents, it is often the case that redevelopment activities are used to finance projects which benefit a wider audience. Similar to arrangements for the provision of public facilities, redevelopment projects should not be pressed upon to fund projects providing citywide benefits.

CHINA

URBAN LAND MANAGEMENT: OPTIONS FOR AN EMERGING MARKET ECONOMY

Strategic Planning in Hong Kong and Singapore

A. Hong Kong

1. Hong Kong's Strategic Plan is divided into three tiers: a territorial strategy plan; seven subregional planning statements; and local, district-level plans. Applicable to each of the three levels, there is an accompanying "Hong Kong Planning Standards and Guidelines" government manual, which is revised periodically and is not statutory in nature.
2. The Strategic Plan, at the territorial level, was first introduced in 1984 after examining four development scenarios, and their associated implications. It is citywide in scale, and multisectoral in nature, covering investment plans, financial resource requirements and institutional details needed to implement a 10-15 year land use scenario that is associated with the achievement of various socioeconomic and environmental objectives. The Plan is subject to periodic monitoring and "feedback," allowing revisions to be incorporated from time to time.
3. The subregional development statements provide land use plans and accompanying texts that detail planned land use zones, and necessary sectoral policies and plans raised by key issues encountered in elaborating the recommended plans. These statements have a "shelf life" of 10 years, and are meant to translate territorial goals into concrete regional plans, while helping district planners pay heed to the larger picture as individual developments are executed. The statements cover such areas as assumed population and employment targets, general land use plans, transportation and environmental problems to be tackled, the phasing of major public works, building height and urban design guidelines, principal implementing agencies and coordinating mechanisms. Special "action plan areas" meriting particular attention are also highlighted.
4. Local or district plans involve the development of statutory outline zoning plans. These plans are prepared for existing and potential urban areas and show areas zoned for specific purposes, based on existing and forecasted uses. Each plan is subject to public inspection for two months, then reviewed at the highest level of government, where all objections are examined and appropriate changes are made. The plans are then issued as laws.
5. Attached to each statutory plan is a schedule of notes that set out uses which are always permitted in a zone, those that require permission from local authorities, and those that are banned. As noted, government agencies have nonstatutory development and layout plans that accompany the district statutory plans; these are used to help facilitate needed infrastructure development.

6. The whole process of urban land use planning is overseen by the Governor, assisted by the Executive and Legislative Councils. Various executive agencies are involved in the process, including a land development policy committee, a land building advisory committee, a transport advisory committee, and an environmental pollution advisory committee, the financial secretary, as well as the various executing authorities or boards.

### B. Singapore

7. Singapore began with a conventional statutory Master Plan, which was completed in 1955 and adopted in 1959. It was meant to be a statutory instrument used to regulate land use through zoning, density, and plot ratio controls; while reserving land for public facilities, open space and infrastructure. It had a decidedly decentralization bent, and included a broad green-belt around the central city and plans for new towns and other designated urban areas. Maps were prepared for the Central Area, other city and town development zones, and the rural parts of the island. The Plan was flexible enough to allow for ad-hoc rezoning based on new plans or planning reevaluations of any specific area. Each Map was accompanied by written statements that elaborated on the Maps, and outlined uses that were automatically allowed, those that would be considered, and those that were banned.

8. Soon the Master Plan was declared inadequate to deal with the changing pace of development, and the redirection of the local economy. Instead, it has been retained as a document, revised every five years, that controls private development and legalizes the charging of exactions from developers who are granted favorable rezoning decisions that increase the profitability of their development by removing certain Master Plan constraints.

9. As a legal document, the Master Plan was set aside for the statutory agencies that are responsible for much of Singapore's development, including the Housing and Development Board, the Urban Redevelopment Authority, and the Jurong Industrial Corporation. The new instrument guiding development was labeled the Concept Plan, and its elaboration coincided with a shift to a strong center-city development strategy, setting many decentralization objectives aside.

10. The first Concept Plan was issued in 1971 and revised in 1987-91. Its aim was to set strategic directions for more detailed local planning, while laying out a transportation plan to guide land use trends over time. That transport plan was centered on the Central Area and radiated out along three corridors, with associated circumferential ring roads.

11. The Concept Plan sets goals for the year 2000, 2010, 2030, and a final year "x". It is linked to a set of associated plans covering not only transport, but also parks and waterways, the natural habitat, and plans related to leisure, culture, and sports facilities.

12. The broad vision plans provide the basis for 50 development guide plans, one for each of the island zones. The plans lay out land use, control parameters and urban design guidelines. They are based on existing conditions and forecasts, but are meant to be flexible and developer-friendly. All plans are subject to public inspection and review, and various objections lead to

modifications before plans are finalized. These plans are accompanied by urban design plans that provide greater detail concerning the guidelines to be followed in designing the height, mass, and form of buildings, while providing for pedestrian and vehicular access, plus open spaces. More recently, conservation plans, covering an initial 100 hectares of the Central Area, have been introduced to control urban renewal, in recognition of the historic fabric and economic value of historic preservation.

13. Obviously, all private developers must obtain the requisite approvals. Local allocation of land for public sector uses is, however, vetted at the highest level by a Master Plan Committee, headed by the chairman of the Urban Redevelopment Authority; these plans are subject to detailed review meant to conserve land.

CHINA

URBAN LAND MANAGEMENT: OPTIONS FOR AN EMERGING MARKET ECONOMY

Registration of Property Interests

1. An appropriate and functional registration system would record, in one location, all the potential and multiple rights associated with a single parcel of land. Potential rights include:

(a) Above-Ground Rights

- (i) Air-use rights
- (ii) Building ownership
- (iii) Stratified building ownership (for multiple dwelling and multiple use buildings)
- (iv) Occupation rights (through allocation system)
- (v) Residence leases (for compensation)
- (vi) Commercial leases (for compensation)
- (vii) utility easements
- (viii) road rights-of-way

(b) Ground-Use Rights

- (i) Land ownership
- (ii) Land-use rights (through allocation)
- (iii) Land-use rights leases (for compensation)

(c) Below-Ground Rights

- (i) Mineral extraction rights
- (ii) Oil and gas extraction rights

(d) Foundation Financing

Financial instruments:

- (i) Mortgages using ground leases as collateral
- (ii) Mortgages using building or apartment ownership as collateral
- (iii) Liens on property

2. Public access to determine what rights have been granted and to whom is essential to engendering the confidence required to promote financing of urban development.

3. An accurate legal description of a parcel of land is the foundation for an orderly registration of all related property rights.

CHINA

URBAN LAND MANAGEMENT: OPTIONS FOR AN EMERGING MARKET ECONOMY

Cadastral Mapping

A. Cadastral Mapping and Geographic Information

1. The key to management of a market-oriented land use control system lies in the effectiveness of monitoring and adjustment mechanisms. The availability of information technologies offer urban planners and administrators a powerful tool with which to exercise more dynamic planning techniques, anticipate changes in the social and economic objectives of the community, and reduce negative regulatory impacts.

2. The cadaster is supported by a cadastral map prepared by the local land administration bureau. The map is prepared according to national standards set by SLA and shows the location, reference numbers and features of contiguous land parcels as defined by the certificate diagrams in relation to the local topographic survey control system (often linked to the national survey control system). This enables the pinpointing of any parcel of land and the precise identification of its boundaries on the ground. In dense urban areas, the maps are prepared at a scale of 1:500 and each map covers an area of 5 hectares. In suburban and rural areas, where densities are low and collective parcel sizes are large, scales of 1:1,000 and 1:2,000 are used. A city such as Shanghai requires some 16,000 maps to cover the entire municipality (6,340 km<sup>2</sup>), an exercise which is expected to cost about Y 6 million; this is probably a serious underestimate. Updating is expected to occur at five-year intervals. Production of the cadastral maps is carried out where possible in conjunction with topographic mapping obtained from aerial photography. The cadastral information is generally obtained separately by ground survey methods and is overlaid on the topographic map base. This separate activity is relatively expensive since the ground survey methods used are relatively slow and manpower-intensive.<sup>1/</sup> Some cities have created their own cadastral surveying capacity for this purpose; others have hired survey contractors (usually the provincial survey bureau), sometimes using competitive bidding (e.g., Chengdu). Methods of cadastral surveying by cheaper aerial surveying means have been developed by the NBSM (e.g., the Xi'an cadaster was produced in this way), but accuracy in locating the corner points remains a stumbling block.<sup>2/</sup> A discussion of some alternative cadastral mapping methodologies is provided below.

---

<sup>1/</sup> According to SLA estimates, land ownership investigation currently costs about Y 100,000/km<sup>2</sup>, and land registration about Y 42,000/km<sup>2</sup>. It is proposed to recover these costs through increases in the registration tariffs.

<sup>2/</sup> Conventional aerial photography enables a point on the ground to be located with an accuracy of about 50 cm compared to the SLA standard of 5 cm in urban areas and 20 cm in suburban areas.

B. Cadastral Mapping in Selected Urban Areas

3. The absence of a cadaster renders efficient land management well nigh impossible. Progress in the case study cities surveyed is mixed. Cadastral mapping of Shanghai's urban area, containing some 273,000 plots, is allegedly 82 percent complete. It was carried out over four years.<sup>3/</sup> Current cadastral map production in Guangzhou Municipality is not only proceeding slowly, but also in a form which limits its usefulness and inhibits rapid processing of the leases or land use rights certificates. Mapping to date has covered about 180 km<sup>2</sup> of the 1,443 km<sup>2</sup> city proper area of Guangzhou. Plot diagrams relating to 57,000 plots have been prepared, compared to an estimated required total of 600,000. The diagrams are based on individual ground surveys for the most part, because the cadastral mapping does not denote boundaries with adequate precision. The cadastral mapping is adapted from low-order accuracy, topographic mapping which dates from 1978 and is due to be updated or resurveyed. In Chengdu, although 40 percent of the estimated 150,000 urban plots have been surveyed; cadastral mapping has barely begun elsewhere except for six county towns (1,387 km<sup>2</sup> from a total area of 12,390 km<sup>2</sup>). A low-cost means for rapid cadaster production is clearly desirable.

4. Topographic surveys are a common basis for cadastral mapping in cities. Urban areas contain a lot of detail compared to rural areas and require maps of relatively large scale to convey the information. Cadasters in dense areas typically require a "large" scale of 1:1,000 or even 1:500 (which is also a convenient working scale for construction planning and utility mapping). Low-density or undeveloped areas can be mapped at 1:2,000. Maps can contain details covering about 5 ha at a scale of 1:500, or 25 ha at 1:1,000; hence, a large city with a built-up area of, say, 200 km<sup>2</sup> would require 4,000 map sheets at 1:500 or 800 sheets at 1:1,000. A ground survey would be the most critical component in time and cost terms, especially in urban areas with restricted sight distances. In order to minimize costs, surveys of large areas such as a city are usually carried out by mass-production techniques using photogrammetric methods based on large-format

---

<sup>3/</sup> Shanghai's 5,965 km<sup>2</sup> of suburban area contain an estimated 1.5 million plots. The cadaster, begun in 1988, is only 9 percent complete.

aerial photography.<sup>4/</sup> Although once controversial, large-scale aerial photography is now accepted as a suitable basis for 1:500 mapping in urban areas, but supplementary ground survey work may be required in very dense areas. Images from remote-sensing satellites, while capable of covering very large areas, do not yet yield a sufficiently detailed basis for larger-scale mapping.

5. A much lower cost alternative to large-format aerial photography has emerged in recent years in the form of small-format aerial photography. This technology uses a light aircraft and a 53 mm camera flying at, for example, 1,000 m above ground, to produce 1:20,000 scale negatives (i.e., covering 1 km<sup>2</sup>); these can be enlarged to 1:1,000 scale prints. The prints can be digitized to create a database and generate maps of reasonable accuracy.<sup>5/</sup>

---

<sup>4/</sup> Photogrammetry involves deducing ground measurements (horizontal and vertical distances) from aerial photographs. Producing maps by photogrammetry involves four steps: (a) aerial photography; (b) ground control point surveying; (c) photo rectification; and (d) cartography. The photographs are taken with a large-format (23 cm) aerial camera mounted in a specially equipped aircraft that is flown along a series of parallel flight lines at a constant height (depending on the detail required) to provide the coverage required and to provide adequate overlap between the photos. China's civil aviation authorities provide most aerial photography services in China. Accurately surveyed control points located on the ground and visible in the photographs are used to position the photos either individually or in blocks and help adjust them to an appropriate planimetric accuracy. The ground control points are often linked through either major and/or minor control surveys to the national geodetic survey network (established in China by the NBSM). The adjustment process is known as rectification which helps eliminate the natural distortions in the print image. Rectification is carried out by large precision instruments (analog plotters or the more modern analytical plotters). The investment in the plotters is considerable and these are typically available at the provincial-level survey and mapping bureaus, and some larger municipalities. Traditionally, information from the rectified photograph could either be selectively plotted automatically (usually in pencil) to the scale required and checked (by field surveys where necessary), or transformed as a whole directly into a reproducible orthophoto map. Plotting from analog plotters must then go through a cartographic stage to produce the final reproducible map. The resulting line map is usually traced by hand, in ink, on sheets of stable, transparent plastic film that have been preprinted with borders, title blocks, grids, scale, etc. More recently, analytical plotters have been developed which digitize the required information for inclusion in a computer database as well as automatic line-map plotting or orthophoto presentation.

<sup>5/</sup> As noted, the technology was developed by the International Institute for Aerospace Survey and Earth Sciences, Netherlands. Wuhan Technical University of Surveying and Mapping is equipped to carry out this form of aerial photography and mapping in China.

6. Where ground survey methods are essential in order to supplement information which cannot be determined from aerial photography, a system of digital field data collection is available. In this system, survey data are obtained by automatic surveying instruments (eliminating the need for tape measurements) and then entered in a field recorder. The data can be downloaded into a portable computer (PC) which is programmed to generate the cadastral map, parcel or plot diagrams and descriptions, as well as the information for a digital information system database.<sup>6/</sup>

7. Many municipal departments require maps for the performance of their day-to-day duties in planning, construction, and operations and maintenance (O&M). Many of China's cities have a 1:2,000 scale topographic map series and many have 1:1,000 and/or 1:500 maps of their denser areas. Such mapping is theoretically updated at five-year intervals, but budget constraints often prevent this. While each department might wish to obtain its own map series, there are considerably economies of scale in jointly obtaining a suitable map, although not all agencies' specifications are the same and some compromises must usually be made.<sup>7/</sup> The advent of digitizing, however, has not only improved the ease and quality of mapping but, equally important, it has also provided an easy means of assembling a database for use in Land Information (LIS) or GIS. Such data must be coordinated, either by measurements from the map (i.e., rough coordinates, i.e., within 5 m) or directly from field measurements, if high precision is necessary (e.g., plot boundary corner points). It has become relatively easy and useful, therefore, to incorporate the high survey accuracy standards for a cadastral map into joint mapping program specifications.

8. The significance of a cadastral map lies partly as a tool for land management and partly in its role in registration of land titles. Many title systems use extracts from the cadaster plan as diagram inputs attached to deeds or certificates, e.g., Guangzhou's counties. Guangzhou City, however, currently uses a specially drawn diagram compiled from field measurements obtained from a unique site visit. Considerable time could be saved by using a cadastral plan extract. Although some field measurements would still be required, these could be obtained as part of a mass-survey program, as described above. The digitized information obtained could be used to produce the cadastral map and parcel diagrams.

---

<sup>6/</sup> Such a system (Field Data Collection and Computer-Aided Mapping System) has been developed and is in use by the Research Institute of the Guangdong Provincial Land Administration Bureau.

<sup>7/</sup> Planning Departments, for example, might have use for maps at 1:2,000 scale with a relatively low degree of accuracy (i.e., a 1 mm distortion on hard-copy media is equivalent to 2 meters on the ground). Engineering departments would generally wish to have maps accurate to within 50-100 mm on the ground (i.e., 0.1 to 0.2 mm on hard copy). Such accuracy is difficult to obtain in reality and key points are generally given x,y coordinates in order to locate them on the ground accurately. Cadastral maps should also incorporate a high degree of accuracy, and boundary corner points should be given coordinates obtained from field surveys or high-precision photogrammetry.

CHINA

URBAN LAND MANAGEMENT: OPTIONS FOR AN EMERGING MARKET ECONOMY

Geographic Information Systems (GIS)

A. Hardware and Software

1. The elements of a GIS configuration are:
  - (a) data acquisition, i.e., a means of entering data in a digitized form into data storage such as by keyboarding (from written lists, for example), interaction with other compatible electronic databases, or scanning (from plans, photographs, remote-sensing images);
  - (b) data storage, i.e., a database which stores information in a classified and interrelated way for future retrieval;
  - (c) data management, i.e., tools for organizing, manipulating and analyzing the information;
  - (d) data retrieval, i.e., means of transforming and visually presenting information in tabular or graphical output form and generating hard copies; and
  - (e) data application software, i.e., programs which use the stored information for specific purposes (e.g., transport network modeling, terrain modeling, infrastructure maintenance planning, feasibility analysis, etc.).
  
2. Because of the immense data storage needed, early GIS were generally supported by costly mainframe or minicomputers. The computing power required is now available in inexpensive desktop 386- and 486-type microprocessor-based PCs. Even with the addition of essential hardware such as scanners, data storage devices, monitors, printers and plotters, a PC-based GIS workstation is still a relatively inexpensive option. Through network linking, several workstations can be served by a single computer. Software programs with various degrees of capability are readily available 1/ and Chinese-language versions are under development. Compatibility among the hardware and software (and information) components is of paramount importance, which in turn

---

1/ PC-based GIS programs vary in capability and price from \$1,000 to \$3,000 each. Under current supplier terms for the software, one program is required for each user or workstation. Software for larger systems with greater capability, such as may be required by advanced municipal users, varies from \$5,000 to \$10,000. Such systems are often modular and can be built up progressively. Lower-priced software tends towards thematic or pin map production capability, whereas the larger systems include analytical features and applications programs and tend to have better data management capabilities.

requires careful thought to the design of the GIS. Selection of equipment and software, however, will have much to do with the applications envisaged.

## B. Information Management

### Basic Information

3. Through its unifying influence, the benefit of wide-scale GIS architecture to municipal operations is potentially very large. The systems development, engineering and training requirements are, however, considerable and implementation can take several years to complete. Moreover, information gathering and updating costs can be high. However, many applications can proceed on the basis of small-scale but powerful, "mixed technology" or Strategic Information Systems (SIS) that combine existing maps and hard-copy information with digital technology to confront immediate problems. The introduction of GIS-based methodologies and applications, therefore, need not (nor should not) wait for the development of a full-scale database. SIS development can proceed in a parallel fashion. The two versions would, over time, naturally converge into a single system.

4. In the approach to design of the full-scale database, it is also important to remember that much information is available in sectoral agency files and databases, and need not necessarily be centrally stored or available to all. Hence, a modular, incremental development approach is possible. However, a fundamental information base is of common interest. The cadastral plan, if available, or an equivalent topographic plan, can provide this fundamental framework.

5. Since integration is an important strength of the GIS, the information stored in a GIS must be interrelated in order to serve this purpose. It is important that data be classified rationally and entries coded and addressed systematically to facilitate comparability. Currently, classification and coding standards are not available in China, although the NBSM is attempting to prepare draft standards. The basic relationship is positional; ideally, all data should be referenced to a common cartesian coordinate system. Most cities use a cartesian or plan coordinate system (similar to a rectilinear grid) referenced to latitude and longitude for city maps. In China, the NBSM has established a system of geodetic control points accurately positioned with respect to latitude and longitude, which can be used as the origin for a local grid.<sup>2/</sup>

---

<sup>2/</sup> A plan coordinate system or rectilinear grid has sides which are parallel and perfectly horizontal, in contrast to lines of longitude which converge on the Poles and like lines of latitude conform to the circular shape of the Earth. The local grid may be based on a North-South orientation or may be rotated to some degree for local convenience. The grid will, therefore, usually have a single reference to latitude and longitude as its origin. Latitude and longitude coordinates can be transformed to the local grid coordinates and vice versa, using a suitable orthogonal Mercator projection (e.g., Universal Transverse Mercator projection). Local coordinates are usually designated in x,y form.

6. In designing the database, consideration of the scales of maps that may be required as output is important. The detail that can be shown at a large scale of 1:500 (a common scale for construction planning purposes) would be difficult to display at 1:2,000 (useful for small-area planning) or even more so at 1:5,000 or smaller (for large-area planning). Thus, the database management system must either be designed to suit a particular scale or include some sifting or screening feature to ensure that an appropriate level of detail is presented.

#### Physical Information

7. Physical information such as building corners, road center lines, or other prominent points can, through precise (cadastral) surveying methods, be referenced to the coordinate system and, hence, plotted in relation to one another, which provides the basis for an accurate map drawn to scale, as well as the computation of precise areas and distances. Coordinates can be inferred from existing maps, but obviously with limited and uncertain accuracy. Land or plot boundaries, administrative boundaries, census area boundaries, etc. can all be represented geometrically as polygons and accurately positioned on the map. Similarly, lines such as pipelines or roads, or points such as buildings or lampposts can be positioned. Information based on coordinate positioning is known as "vector data" and the point location coordinates must be established for this purpose. It can be stored in a GIS database or sometimes in common proprietary database files. Information obtained by automatic scanning of photographs or remote-sensing images is stored as "raster data." These data consist essentially of a mosaic of colored points (pixels) and are not compatible with vector data. It is, however, easy to acquire such data, which are often useful for specific applications but of limited value to a comprehensive, relational database. Software programs are available (including Chinese-designed programs) to convert raster data into vector data.

#### Thematic Information

8. Thematic information related (or attributable) to the polygons can be stored, such as population, or property areas, ownership and values, or quality of water supply services, or incidence of disease, pollution or flooding, etc. Attributes related to "lines" such as the volume of traffic (or incidence of traffic accidents), or the size, depth and condition of the pipeline or cable and its maintenance records, can also be stored. Common proprietary spreadsheet programs can be used to store attribute data. Frequent updating of such information is possible, which can then be monitored and analyzed to alert planners and decisionmakers of emerging trends and problems such as, e.g., shortages, capacity constraints or overcrowding. Such up-to-date information can facilitate the planning of appropriate, just-in-time solutions, which minimize the need for excess capacity and idle investment.

#### C. Issues and Constraints

9. The development of GIS systems is a widespread activity in many municipalities and research institutes throughout China. Many are facing similar obstacles as well as local constraints. The major issues are:

- (a) Technology. The GIS must draw upon many different data sources and support many different users. Each of these sources and users will likely have an information system in place or under development. Many subsystems have similar data needs and a common layer (or layers) of information such as topography, cadaster, population, etc. is called for. Unified, digital surveying and mapping technology, as well as systematic cooperation, should be used to facilitate topographic and cadastral survey work and the creation of a digitized, coordinated database. The specialized information needs to be stored in a compatible form and referenced in a manner that can be understood by others. The data structure, its classification and coding should be standardized. Hardware and software interfaces are needed to allow exchanges of information. Database programs should be relational and data acquisition and entry simplified. Software should be powerful, versatile, user friendly and inexpensive. Hardware should be as inexpensive and reliable as possible. An inter-agency central clearinghouse for technology development and evaluation would be a useful measure to avoid duplicate or redundant research.
  
- (b) Municipal Information Systems Policies. Such policies are lacking, particularly in the area of data sharing and exchange, as well as updating and archiving. Local practices and security concerns affect this issue. Linkages among various commissions and bureaus information systems (Planning, Finance, Construction) are desirable in order to have the necessary economic, financial and physical data needed for integrated planning purposes. Guidelines on "best" practices in data sharing and exchange are needed. As mentioned above, data structure, classification and coding should be standardized to facilitate exchanges.
  
- (c) Applications. Most effort to date has been applied to the information engineering aspects of GIS. Little effort has been spent on identifying applications for the data or integrating the use of the database into routine work such as macrospatial planning, sectoral planning, annual planning and budgeting, project analysis, operations and maintenance planning and management, or program and project evaluation. User requirements must be surveyed, and processes and procedures spelled out and their data needs and reports identified.

D. GIS Development Strategy and Costs

1c. A strategy for building a wide-scale GIS in conjunction with the cadaster production could be as follows:

Phase I:

- (a) form a municipal user task force and working group to (i) survey and review potential user information needs and commonalities, and (ii) define objectives, system concept, standards and engineering (including rough benefit/cost analysis), phased implementation plans and budgets (6-12 months);

- (b) speed up cadaster map production; engage surveying contractors; equip the land administration or mapping agency with the capacity to digitize maps and train staff (12 months);
- (c) develop, test and operationalize mini-GIS ("mixed technology") applications (3 months);
- (d) develop cost-recovery mechanism options;

Phase II:

- (e) review large-scale GIS hardware and software system options; select appropriate vendors and establish pilot-scale information centers in selected users' offices (6 months);
- (f) build a fundamental database from the cadaster and/or topographic maps (along with cadaster mass production) and supply this to all user information centers (12 months);
- (g) encourage users to build compatible sectoral database files and acquire or develop applications programs (12 months);
- (h) train users; internalize applications into spatial and sectoral planning, and investment planning and budgeting procedures (12 months);

Phase III would expand the scope of pilot system and training program to other potential users.

11. Phase I would benefit from participation of national and other municipal agencies or research institutes in order to establish standards and norms and exchange experience. A development plan for disseminating the technology and experience throughout China to a network of GIS-related institutions could be included also as a Phase I objective.

12. Notional estimated costs (in US\$) for the Phase I pilot city program, excluding national exchange network costs, could equal \$500,000 equivalent (including the cadastral mapping), or somewhat less, if cadasters are already available. Phase II cannot be realistically costed at this time, but an indicative amount would be \$1 million for cadaster production, \$500,000 for GIS workstations and software, and \$250,000 for training and development, or say, about \$2 million in total for a medium-sized city. A fully developed GIS system, covering a large built-up area such as Shanghai, would be much more expensive, and cost \$25-35 million to implement, requiring 3-5 years to complete.