

UC Berkeley
IURD Working Paper Series

Title

Urban Residential Redevelopment in the People's Republic of China

Permalink

<https://escholarship.org/uc/item/3k0006bm>

Author

Dowall, David E.

Publication Date

1993-03-01

Working Paper 591

Urban Residential
Redevelopment in
the People's Republic
of China

David E. Dowall

March 1993

University of California at Berkeley

\$5.00

Working Paper 591

Urban Residential Redevelopment
in the People's Republic of China

David E. Dowall

An earlier version of this paper was presented at the Metropolitan Research Institute, Budapest, Hungary, September 1992, and at the AREUEA/USC International Conference on Real Estate and Urban Economics, Los Angeles, California, October 1992.

University of California at Berkeley
Institute of Urban and Regional Development

URBAN REDEVELOPMENT IN THE PEOPLE'S REPUBLIC OF CHINA

David E. Dowall
Department of City and Regional Planning
University of California at Berkeley

INTRODUCTION

Urban housing in China is overcrowded, poorly equipped, and in very bad condition. The typical urban household has 6.84 square meters of living space per capita, and over 30 percent of all urban households have less than 4 square meters per person (World Bank, 1992). Nearly 8 percent of urban households are classified as "inconvenienced," meaning that some household members must share bedrooms with other family members (grandparents and married children sharing, or parents sharing bedrooms with teenage children). On average, less than half (45 percent) of urban households have water taps available for their exclusive use. About 28 percent of these households have no sanitary facilities, and nearly 30 percent lack kitchens for their exclusive use. In total, approximately 232,000,000 square meters of China's urban housing stock is old (built before 1949) and beyond repair. Despite the impressive levels of new housing construction in Chinese cities, there is still a massive job to be done to redevelop inner city areas (see Shanghai Municipal Government, 1988; Fong, 1990; Kim, 1990; and Kirkby, 1985). Unfortunately, the pace of residential redevelopment is slowing, blocked by a variety of well-intentioned public policies which makes it nearly impossible to carry out residential redevelopment without massive subsidies.

This paper reviews redevelopment policies and practices in use in a range of Chinese cities, assesses their implications for project feasibility, and proposes policy options for improving the financial feasibility of urban residential redevelopment. The paper is based on extensive field research conducted during 1991 and 1992 in Fuzhou, Guangzhou, Hangzhou, Shanghai, and Tianjin which was supported by the China Department of the World Bank (World Bank, 1993). The policy analysis is based on eleven case studies of redevelopment projects. The appendix to this paper provides a brief profile of the cases. The next section describes urban redevelopment policies found in most large Chinese cities.

OVERVIEW OF COMPENSATION AND RELOCATION POLICIES

Chinese urban redevelopment policy is governed by four key principles: (1) in-kind versus cash compensation for housing; (2) maximization of on-site provision of replacement housing; (3) developer exactions for the provision of community facilities; and (4) imposition of fees and taxes on redevelopment projects. The high incidence of in-kind and on-site resettlement, heavy requirements for the provision of community facilities at no cost to local district governments, and the

payment of numerous fees, taxes, and charges makes it difficult for real estate development corporations to undertake redevelopment projects. Unless they are permitted to redevelop cleared sites at substantially higher densities, projects are financially feasible only if the price of commodity housing or commercial space can be aggressively marked-up to provide enough revenue to carry the cost of project development, including the provision of replacement housing. In some instances, the high mark-ups are not achievable and commodity housing units remain unsold.

The most critical determinant of the financial feasibility of redevelopment projects is how the owners and tenants of demolished housing are compensated. The key dimensions of compensation include: the size, quality, and location of the replacement housing, and, in the case of on-site replacement of dwellings, whether temporary accommodation is provided. In virtually all cities, redevelopment begins with careful and protracted negotiations between current tenants and the real estate development company over property compensation. While practices vary from city to city, the principles are similar and are dictated by municipal and provincial statute (Shanghai Municipal Government, 1991). The resulting compensation depends on who owns the structure to be demolished, and developers negotiate directly with private owners, enterprise, or municipal or district governments to set terms.

In most cases, compensation provided to households located in these areas is made on an in-kind basis and rarely reflects the economic value of either the demolished or newly provided units. It is quite common that the value of replacement units far exceeds those of demolished units. 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. The financial implications of in-kind contributions are enormous and undermine the financial feasibility of redevelopment projects.

Based on a survey of redevelopment projects across China, Table 1 provides estimates of the depreciated value of existing dwelling units and actual replacement costs. The typical depreciated value of old housing units ranged from Yuan 3,000 to 12,000 (reflecting an average value of Yuan 200 per square meter).¹ Replacement costs of new units provided to resettled households ranged from Yuan 16,048 to 71,050. In some cases, the value of new units is nearly four times the value of the replaced units. Even in the case of the Jin Wah project, where replacement units are smaller, new units cost nearly 50 percent more than old ones. The cumulative effect of making these substantial in-kind payments results in high relocation costs. Table 2 illustrates the total in-kind compensation costs for the surveyed projects and their share of total project redevelopment costs. The costs of replacing demolished housing is considerable, ranging from 17 to up to nearly 70 percent of the total cost of redevelopment.

¹The official exchange rate in effect during the time of the survey was Yuan 5.25 = \$1.00.

Table 1
**Comparison of the Economic Value of Old Dwelling Units
and New In-Kind Replacement Units**

<u>Project</u>	<u>Housing Units</u>	<u>Orig. Unit sq.m.</u>	<u>New Unit sq.m.</u>	<u>Value Orig. Unit* Yuan</u>	<u>Cost of Replaced Unit Yuan</u>	<u>Ratio Old/ New</u>
An Deng	108	60	85	12,000	26,010	2.17
Jin Wah	7,492	44	42	8,800	12,852	1.46
Xiao Fuqing	120	50	79	10,000	24,174	2.42
Jiang Gou	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	12.50
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

*The economic value of the old unit is estimated at Yuan 200 per square meter of constructed area, and is based on the actual construction cost to replace the unit, less accumulated depreciation. The value excludes land and infrastructure costs and fees and charges.

Source: Redevelopment project surveys, 1991, 1992.

Table 2
Total Redevelopment and Resettlement Costs

<u>Project Name</u>	<u>Original Housing Units</u>	<u>Total Relocation Cost Yuan</u>	<u>Total Project Cost Yuan</u>	<u>Relocation as a % of Total Cost</u>
An Deng	108	2,809,080	8,025,000	35.00%
Jin Wah	7,492	125,865,600	741,224,028	16.98%
Xiao Fuqing	120	2,559,600	6,992,956	36.60%
Jiang Gou	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.

To compound problems, most cities require or encourage that replacement housing be provided on on-site.² Since redevelopment policies provide for in-kind replacement of demolished housing, with no payments provided to the existing owners, and require developers to build and transfer substantial new public facilities at no cost to local and district governments, all redevelopment projects are financed through the sale of new commodity housing and commercial space produced on the site. By forcing developers to provide on-site replacement, current government policy represses the financial feasibility of potential redevelopment projects: the more on-site replacement housing a project must provide, the fewer units the developer can sell to recover costs. Table 3 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 square meters of residential space, an average of 71,650 square meters per project. There were 14,050 households living on-site, and each had an average of 35.7 square meters of constructed space. With redevelopment came the construction of 630,540 square meters of on-site residential replacement housing, an average of 90,077 square meters per project. After redevelopment 12,742 households returned to the seven projects, an average of 91 percent. Each household received, at no cost, an average of 49.5 square meters of constructed area, an increase of nearly 40 percent.

Table 3

Previous and New On-Site Replacement Housing in Seven Redevelopment Projects With Over 85 Percent On-Site Resettlement

<u>Project Name</u>	<u>Previous Residential Constructed Area</u>	<u>Ave. Unit Size</u>	<u>On-site Replaced Housing</u>	<u>Ave. Unit Size</u>	<u>On-site Replacement as a Percent Total Construction</u>
Jin Wah	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
Ord. Citz.	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.

²As presented in the appendix, four of the 11 projects 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.

In all but one project, households received considerably more housing space, as the redevelopment planners increased living space in inner-city areas to reach per capita minimum standards. In some cases, space per dwelling unit more than doubled. On-site replacement housing accounts for a significant portion of the net increase in total construction. In the seven surveyed projects which had over 85 percent on-site resettlement, replacement housing accounted for between 32 and 65 percent of total new construction.

Devoting one- to two-thirds of a redevelopment project's constructed area to replacement housing for which no revenues are generated imposes a formidable financial drag on project feasibility. The next section examines the financial impacts of on-site replacement and other policies on project feasibility.

ASSESSING THE FINANCIAL PERFORMANCE OF REDEVELOPMENT PROJECTS

The common practice among redevelopers is to set the price of commodity housing at that level where all costs, including the provision of replacement housing, are recovered and a modest mark-up for profit earned. In cities where generous on-site replacement of demolished housing is the norm, the mark-up is enormous, and can exceed 100 percent. As illustrated in Table 4, the break-even prices of commodity housing vary considerably across redevelopment projects, ranging from a low of Yuan 641 for Tianjin's Pingshan Road project to Yuan 5,611 for the overseas-oriented Hui Yi project in Shanghai. The average break-even sales price, excluding the Hui Yi project, is Yuan 1,974

Table 4

Break-Even Prices for Commodity Housing in Redevelopment Projects

Project Name	Percent On-site Resettlement	Break-Even Price of Housing m2	Average Construction Cost m2	Ratio Break-Even Price to Cost
An Deng	0%	Y 877	Y 473	185%
Jin Wah	90	2,592	1,006	258
Xiao Fuqing	100	1,559	454	343
Jiang Gou	0	3,154	3,000	105
Hu Lang	100	3,727	2,218	168
Hui Yi	0	5,611	5,611	100
Ord. Citz.	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		Y 2,305	Y 1,485	155%
Average w/o Hui Yi		Y 1,974	Y 1,072	184%

Source: Redevelopment project survey, 1991, 1992.

per square meters. The average cost of construction for these same ten projects is Yuan 1,072 per square meter (the wide variation in construction costs reflects a range of construction types, walk-ups to elevator buildings, and variations in off-site infrastructure requirements). Overall, the break-even price for these ten projects is 84 percent greater than the average cost of construction and profit, implying that the purchasers of commodity housing units pay an average of 84 percent over the average cost (including profit) of redevelopment projects.

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 above, is for the real estate development company to recover the costs from those who can pay— the purchasers of commodity housing. The remainder of this section assesses price and cost variations and describes 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.

Floor Area Ratio and Redevelopment Cost and Financing

The floor area ratio (FAR) is the single most important determinant of redevelopment project feasibility. 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 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 project³ As the figure illustrates, the break-even sales price declines as the FAR increases. The next section examines government replacement policies regarding the size of new units.

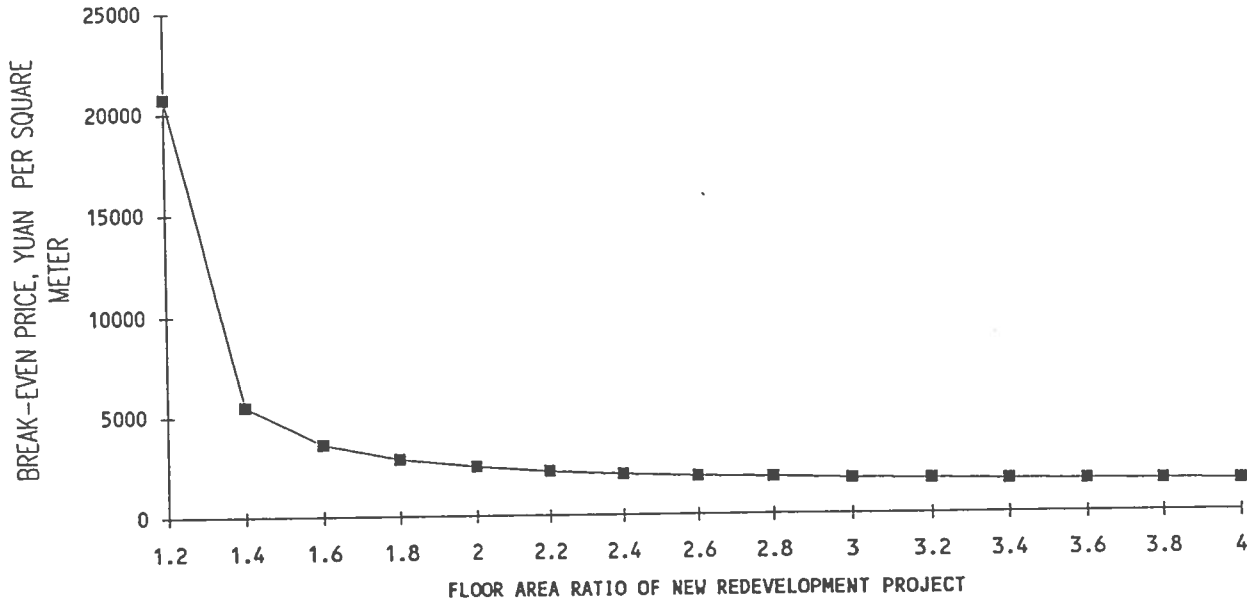
Replacement Space Standards

Discussions with housing planners and government officials across China reveal a preoccupation with the per capita living and constructed area. As described above, in most redevelopment

³The model is based on a project with the following characteristics: site area of 50,000 square meters; a pre-redevelopment constructed area of 40,000 square meters (an FAR of 0.8); and 1,086 housing units with in a total residential constructed area of 38,000 square meters (approximately 35 square meters per unit). It also contained 2,000 square meters 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 square meters 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 square meters of constructed area for a total area of 54,300 square meters. Additional public facilities are constructed to reach 5,000 square meters. After these allocations are made, there is an additional 40,700 square meters of commodity space. Total average construction costs (both hard and soft costs) are assumed to average Yuan 1000 per square meter.

Figure 1

BREAK-EVEN SALES PRICE BY FLOOR AREA RATIO FOR
PROTOTYPICAL REDEVELOPMENT PROJECT



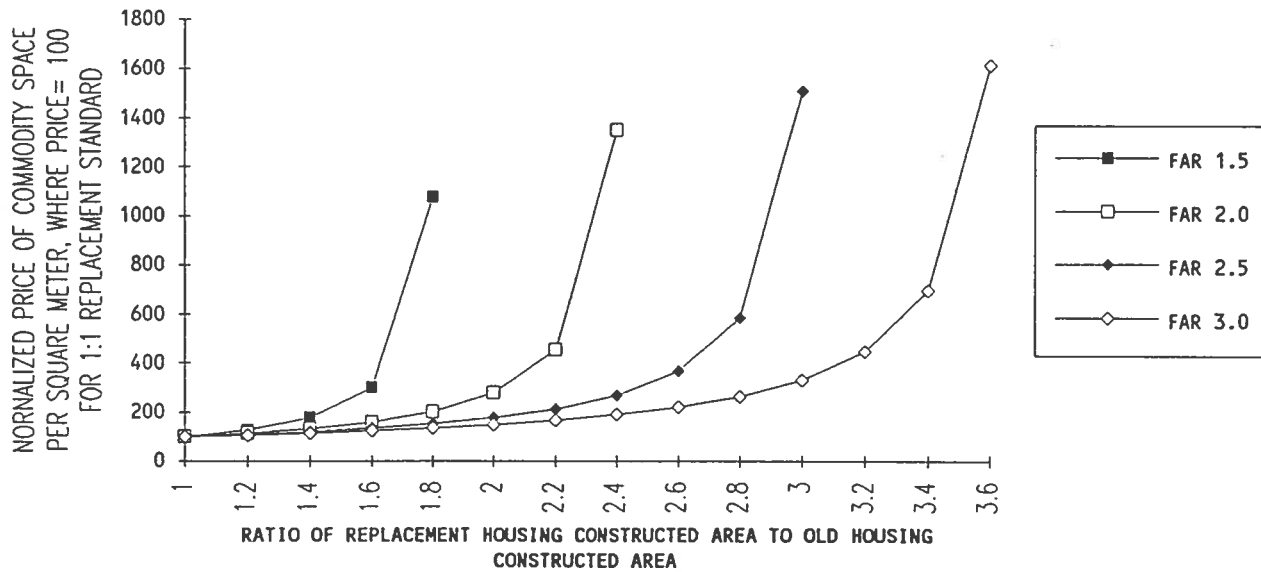
areas, per capita space is limited and there is considerable over-crowding. As revealed in Table 3, for projects where most households were resettled on-site, the size of pre-redevelopment dwelling units ranged from 14 to 50 square meters, averaging about 31 square meters per unit. After redevelopment, on-site space allocations increased to an average of 59 square meters, a 90 percent increase. Only in the case of Guangzhou's Jin Wah redevelopment project were space allocations reduced after redevelopment, from 44 to 42 square meters.

The degree to which more space is allocated to tenants receiving on-site replacement housing significantly affects the amount of new space that can be sold. As the ratio of new replacement space for old housing space increases, the percentage of a redevelopment project's net new constructed area which can be commercially sold decreases. The rate of decrease is faster with lower levels of FAR.

The impact of space allocation policies on the portion of marketable space in a project directly effects the break-even sales price of commodity housing. In Figure 2, simulations of variations in break-even prices are provided for a range of housing replacement policies. The prices have been normalized, with the break-even price set to equal 100 when the replacement ratio is 1:1. The figure illustrates the price implications of offering generous replacement space standards, assuming that all replacement housing is to be financed through commodity sales. Depending on redevelopment project FAR, prices rise dramatically when the replacement ratio increases beyond

Figure 2

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



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 should be increased, probably doubled or tripled. In cases where such increases in FAR are not feasible, redevelopment planners should consider relocating households to other sites. The next section assesses the cost implications of off-site relocation.

On-site versus Off-site Housing Replacement

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 cost-recovery, off-site resettlement may still be advantageous.

If off-site replacement housing can be provided for siting tenants less expensively than on-site provision, relocation will always be financially advantageous. Off-site replacement costs are usually lower per square meter than on-site cost because off-site projects are usually lower-density (six-story versus high-rise), built with lower-cost materials, utilize low-cost suburban land, and do not require the provision of temporary housing.

However, in order to successfully implement off-site relocation, real estate development companies 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 are provided with 20 to 30 percent more space, depending on household size, crowding, and the initial amount of space (Shanghai Municipal Government, 1991). These additional inducements 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 offset most of the economic benefits of increased off-site relocation.

To assess the relative costs of off-site versus on-site relocation, a variety 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 3 and 4. 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. Figure 3 assumes that residents agreeing to relocate off-site will receive a space allocation bonus of 25 percent. Figure 4 assumes that off-site resettlers receive a 50 percent space bonus. Six of twelve 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 less than on-site housing construction costs.

The results of the simulations reveal that in all cases, the break-even price of commodity space increases with the percentage of residents resettled on-site. Redevelopment policies which require generous replacement benefits to sitting tenants are most cost-effective when on-site resettlement is minimized. 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.

These results hold even when those agreeing to resettle off-site receive a space bonus of 25 to 50 percent. If the overall replacement ratio is 1:2 or more, redevelopment policies should encourage off-site resettlement. The overall patterns illustrated in Figures 3 and 4 suggest that cost differentials between on-site and off-site housing construction modestly effect the impacts of on-site versus off-site resettlement. In cases where on- and off-site construction costs are similar, the benefits of shifting replacement housing off-site are less than when off-site costs are lower. However, the overall replacement ratio is the critical factor determining the relative cost-effectiveness of on-site versus off-site resettlement policies.

BREAK-EVEN PRICES BY PERCENT OF ON-SITE RESETTLEMENT, ASSUMING 25% OFF-SITE BONUS FOR VARIOUS HOUSING REPLACEMENT POLICIES AND COSTS, YUAN/SQ.M.

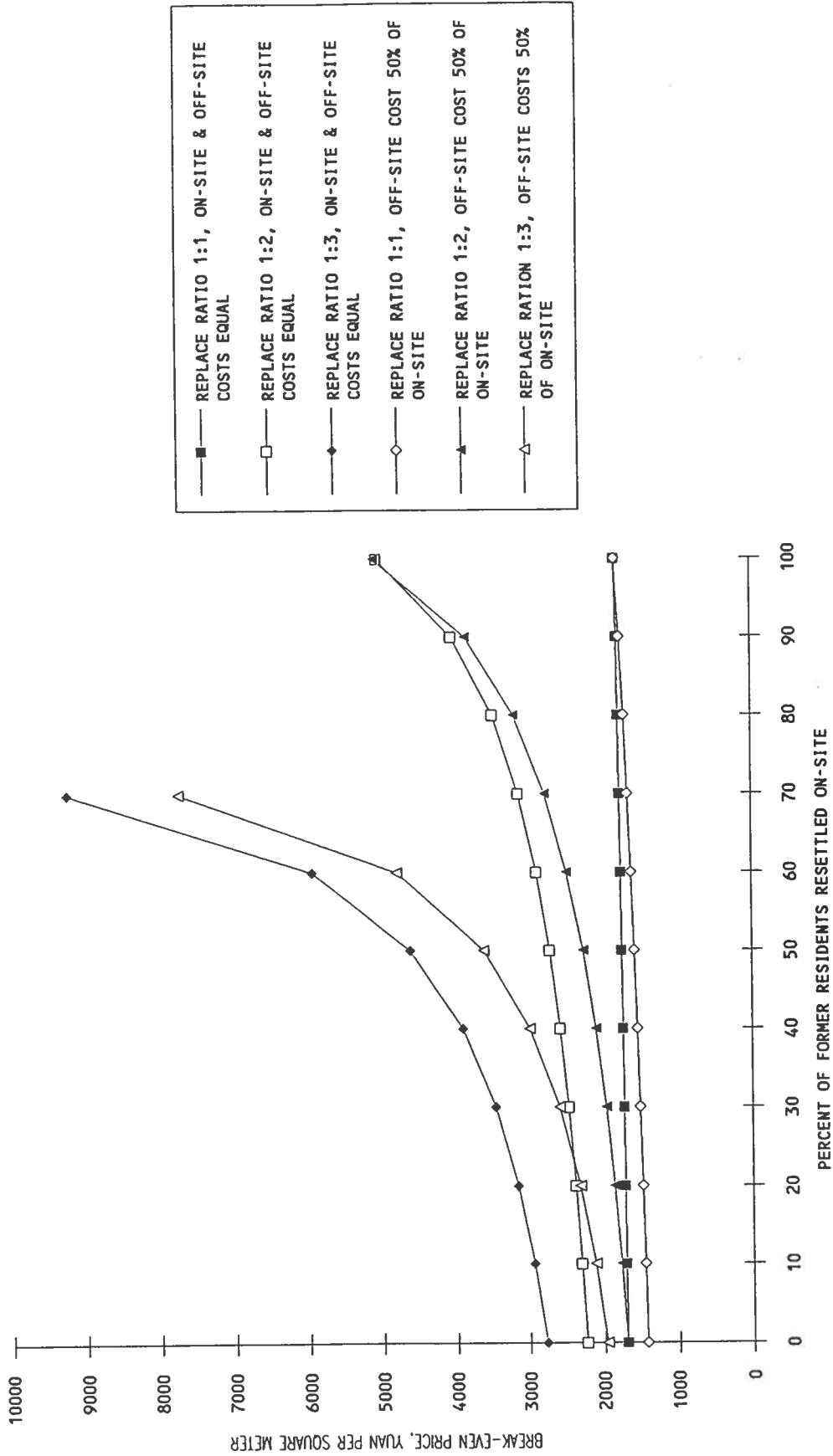


Figure 3

BREAK-EVEN PRICES BY PERCENT OF ON-SITE RESETTLEMENT, ASSUMING 50% OFF-SITE BONUS FOR VARIOUS HOUSING REPLACEMENT POLICIES AND COSTS, YUAN/sq.m.

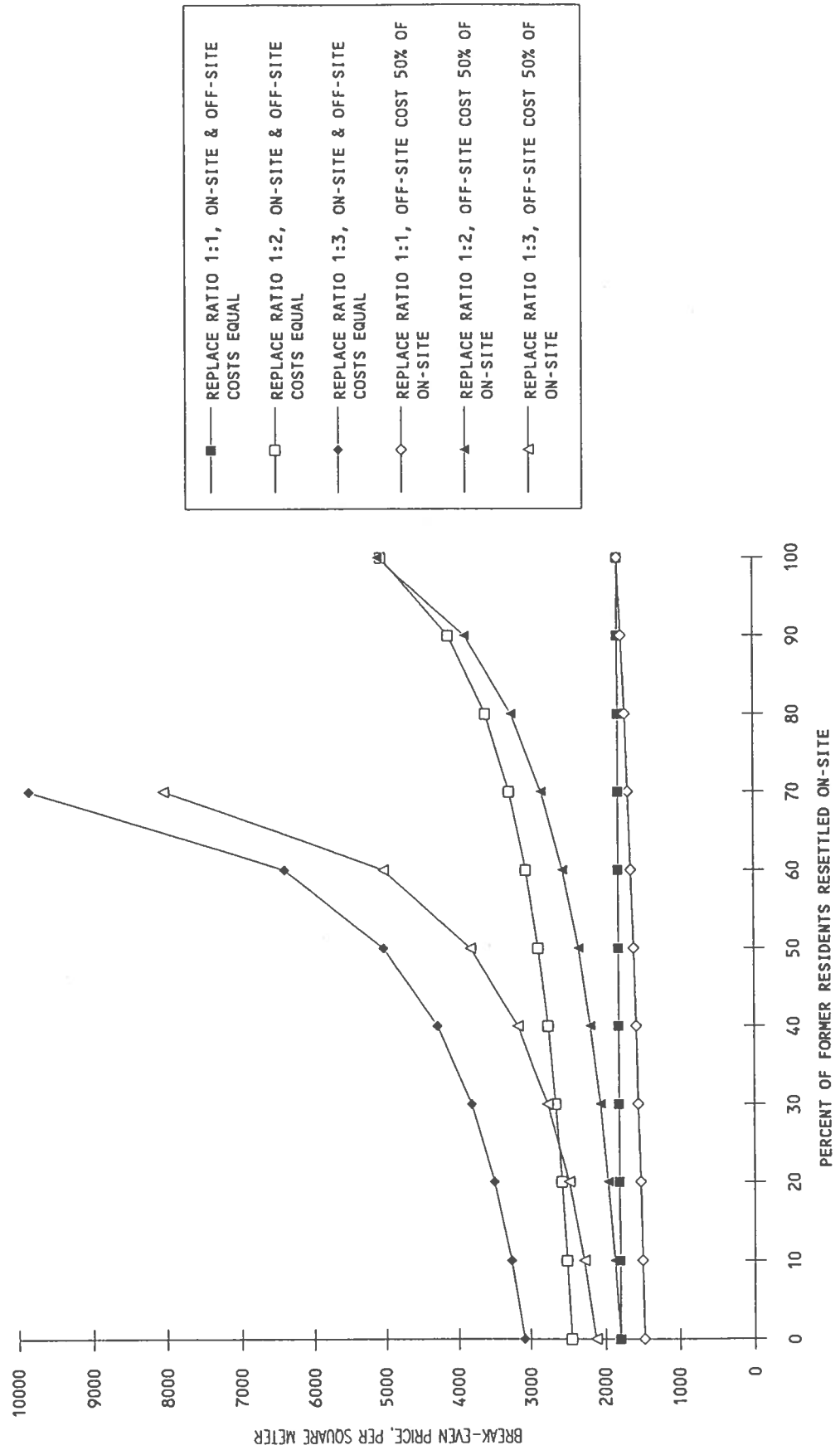


Figure 4

Provision of Public Facilities

Across the People's Republic of China, district and municipal governments require redevelopers to construct numerous public facilities. These facilities, which are turned over free-of-charge to local governments, represent a significant cost of redevelopment. As illustrated in Table 5, in some of the redevelopment projects, a substantial portion of the net new space constructed went to public facilities. Of the ten redevelopment projects, seven were required to provide public facilities. Of those projects providing public facilities, between 1,402 and 163,648 square meters of space were provided, representing between 4 and 41 percent of the total net new construction. Exorbitant planning standards are not the reason for excessive dedications; what happens is that redevelopment projects are viewed as "golden geese" which can be squeezed to provide city-wide services. The Jin Wah project is a classic case in point: government planners required the developer to provide, at no charge, 41 percent of net new construction for numerous city-wide public facilities. In addition to public facility dedication requirements, redevelopers are also required to pay numerous fees and charges.

Fees and Charges

Virtually all redevelopment projects are required to pay a variety of fees and charges, and in some cases they are extraordinary, amounting to over 15 percent of total redevelopment costs. Table 6 presents estimates of total fees and charges levied for the surveyed redevelopment projects, and shows that taxes and fees vary considerably across cities. In Tianjin, only token fees

Table 5

Net Increase in Constructed Space and Provision of Public Facilities

<u>Project Name</u>	<u>Net Increase Constructed Area sq.m.</u>	<u>Provide Additional Pub. Fac. Area sq.m.</u>	<u>% Public Facilities of Net Increase</u>
Jin Wah	402,000	163,648	40.7%
Xiao Fuqing	9,417	1,402	14.9
Hu Lang	71,411	7,500	10.5
Hui Yi	-380	0	0.0
Jiang Guo	62,179	4,300	6.9
Ord. Citz.	208,960	36,000	17.2
Tian He	3,320	0	0.0
Ying Xiang	157,000	17,000	10.8
Pingshan	25,231	2,020	8.0
Wujiayao	45,604	2,000	4.4

Source: Redevelopment project surveys, 1991, 1992.

Table 6**Fees and Taxes Paid by Redevelopment Projects Project Fees & Taxes
As a Percent of Yuan Per sq.m.**

<u>Project Name</u>	<u>Fees & Taxes (Yuan)</u>	<u>As a Percent of Total Project Cost</u>	<u>Yuan per sq.m. Marketable Area</u>
An Deng	750,000	9.3%	82
Jin Wah	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
Ord. Citz.	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.

and taxes are charged on projects, and instead redevelopment projects are required to provide substantial off-site infrastructure. In Fuzhou, the city administration levied fees and charges amounting to about 9 percent of costs of the An Deng project.

In Guangzhou and Shanghai, there are a variety of taxes and fees which redevelopment projects must pay. In the Jin Wah project, in addition to the onerous public facility requirements, the developer paid out nearly Yuan 116,000,000 in fees and taxes, a staggering Yuan 546 per square meter of marketable area, accounting for 16 percent of total project costs. In Shanghai, all redevelopment projects are required to pay Yuan 95 per square meter to the city government as an off-site infrastructure fee. Other fees and taxes increase total payments to between Yuan 213 to 555 per square meter of constructed space.

It is clear that in some cases taxes and fees account for a significant 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, fees should not be levied on redevelopment projects to fund facilities providing city-wide benefits.

Efficient urban redevelopment is thwarted by the lack of transparent market mechanisms and clear property rights. Across urban China, new commodity housing and commercial space in redevelopment projects is priced at two to four times its economic cost. This extreme differential between cost and price is inefficient and creates severe housing market distortions. It also imposes

inequitable burdens on purchasers of housing in redevelopment projects— enterprises and individuals are indirectly paying for the improvement of housing conditions of others.

IMPROVING THE EFFICIENCY AND EQUITY OF URBAN REDEVELOPMENT

China's urban developers must provide replacement housing and community facilities and pay various fees and taxes for the right to redevelop the property. Administrative rules for providing replacement housing simply do not in any way mirror locational or market factors which determine market prices, and there is ample evidence that many very run-down residential blocks cannot be redeveloped because the shadow or administratively determined prices exceed the current site value of the property in its highest and best post-redevelopment use.

In market economies, redevelopment occurs when a site's economic value, when developed into a new use, is higher than the current value of the site and the improvements on it (Turvey, 1957). Under such conditions, developers will attempt to acquire the site, demolish the improvements, and redevelop the property to a more economically productive use. This market-driven process of redevelopment insures that properties are put to their highest and best use.

As housing market reforms spread across urban China, more and more households will have clearly defined property rights over their units and land. Once these rights have been defined, redevelopment laws can be modified so that compensation for units will be monetized and structured to reflect market demand and supply conditions (Dowall, 1993).

Residential redevelopment could be expanded if relocation compensation for demolished housing were monetized so that occupants of old buildings received cash for the value of their unit and its share of land (such an approach is used in Singapore; see Wong and Yeh, 1985). No replacement housing would be provided and all new redevelopment area housing would sell at commodity prices. Under this approach (currently practiced in Fuzhou), residents of demolished units are paid the depreciated value of their housing. They then take the proceeds and purchase new units in other projects. Fuzhou's real estate developers sell all space in new redevelopment projects at commodity prices.

If cash compensation were paid for land and buildings, redevelopment projects could be implemented through competitive bidding for redevelopment project sites. The bids would reflect the real estate development companies' estimates of the construction costs, sales revenues, and compensation for demolished buildings and land, and the highest bidders would be awarded redevelopment rights. Existing owners of flats or buildings on the site would receive compensation for the depreciated value of their units and a pro-rata share of the land value of the site. The pro-rata share should be based on the total value of the bid divided by the original constructed area of the site. Occupants of the site would receive a payment based on their pre-redevelopment ownership of constructed space.

If developers could purchase redevelopment sites through competitive bidding, they would purchase sites and carry-out redevelopment projects predicated on the potential revenues generated from the redevelopment, construction, and sale of commodity housing or commercial space. Developers would bid for sites based on projected total sales revenues from building and selling commodity space in the potential project less all costs of construction and development (including, fees, charges, interest, materials, provision of public facilities, developer overhead, and required profit). The remaining amount, the "residual," is the amount the developer could pay for the land. In practice, developers would bid for sites by offering a per-square-meter level of compensation for existing space, payable to current site users.

Would such an approach be politically and socially acceptable in China? The answer depends on a number of considerations: (1) would households living in rundown residential areas receive enough compensation to purchase better alternative accommodation; (2) would the approach provide feasible development opportunities for real estate development companies; and (3) would the market approach facilitate the redevelopment of rundown areas.

To answer the question above, we need to first consider the capacity of redevelopers to bid for redevelopment project sites. As outlined above, bids will depend on the revenues received from the sale of new housing or commercial space constructed on the cleared site, the cost of demolition and construction, and overhead and required profit. Using the redevelopment simulation model outlined above, estimates of various levels of building and land compensation that developers could offer to occupants of typical 35 square meter apartments can be prepared. Estimates of building compensation assume that flats (and old community space) have a depreciated value of Yuan 200 per square meter —Yuan 7,000 per flat. Construction costs, including demolition of old structures, all fees and charges, management, and project overhead average Yuan 1,000 per square meter of constructed area. In addition, I assume that developers require a profit equal to 15 percent of total construction costs. Assuming that the pre-redevelopment project had 40,000 square meters of space, all of which is compensated and demolished, and that in its place 95,000 square meters of new commodity housing is constructed and sold (and an additional 5,000 square meters of space is constructed and donated to the local district authority), Table 7 presents estimates of potential building and land compensation based on various levels of commodity housing sales prices. Depending on the likely sales price of commodity housing, existing residents stand to receive between Yuan 7,438 and Yuan 115,500 for agreeing to sell and move from their apartment. Are these cash offers generous enough to permit residents to purchase new housing?

Table 8 provides an assessment of the adequacy of the payment to households, in terms of how many square meters of constructed area could be purchased. Three estimates of purchasing power are provided: repurchasing units on-site; purchase of a unit in urban area outside the city center; and purchase of a unit in a suburban location. As the table illustrates, if residents of rundown

Table 7

**Estimates of Redevelopment Building and Land Compensation,
per Apartment Unit**

Commodity Housing Price Yuan sq.m.	Building Compensation per Apartment Yuan	Land Compensation per Apartment Yuan	Total Compensation per Apartment Yuan
1,300	7,000	438	7,438
1,400	7,000	8,750	15,750
1,600	7,000	25,375	32,375
1,800	7,000	42,000	49,000
2,000	7,000	58,625	65,625
2,200	7,000	75,250	82,250
2,400	7,000	91,875	98,875
2,600	7,000	108,500	115,500

Source: Redevelopment project simulations, 1993.

Table 8

**Adequacy of Residential Compensation
in Terms of Replacement Housing Purchasing Power**

Total Replacement Compensation Yuan*	Square Meters of Constructed Area That Can be Purchased with Compensation Payment		
	On-site	Urban Area**	Suburban Area***
7,438	5.7	7.4	11.4
15,750	11.3	15.8	24.2
32,375	20.2	32.4	49.8
49,000	27.2	49.0	75.4
65,625	32.8	65.6	101.0
82,250	37.4	82.3	126.5
98,875	41.2	98.9	152.1
115,500	44.4	115.5	177.7

* See Table 7 and text for method of estimation

** Assumes a purchase price of Yuan 1,000/square meter.

*** Assumes a purchase price of Yuan 650/square meter.

Source: Redevelopment project simulations, 1993.

housing projects are willing to relocate, they can significantly improve their position if the level of compensation exceeds Yuan 30,000. The results clearly illustrate that on-site or inner-city relocation is expensive, and residents who are unwilling to move outside the central area must receive high rates of compensation (over Yuan 85,250) if they are to benefit from the redevelopment compensation. The overall result of the simulations suggest that residents could be made better off if compensated, and therefore many would be likely to accept it.

From the perspective of the developer, the payment of monetary compensation appears to be attractive. Even after paying compensation, developers can receive significant profits from redevelopment (15 percent of total construction costs). They are also exposed to far less risk, since the actual costs of replacement housing compensation can be set up-front before committing to the project. The simulation results suggest that monetizing redevelopment compensation could be a promising approach to fostering the redevelopment of older rundown residential areas.

CONCLUSIONS

Cash compensation for buildings and land given up for redevelopment would greatly enhance the efficiency and transparency of redevelopment financing. By broadening compensation payments to include land, affected households and owners would receive substantial funds to apply toward the purchase of replacement housing on the commodity market. Such an approach is far superior to the widespread practice of providing in-kind contributions. It would increase the transparency of redevelopment finance and reveal true resource costs to redevelopment agencies and governments as well as to the purchasers of commodity housing.

Appendix 1

Description of Redevelopment Case Studies

The eleven redevelopment projects are listed in Table A. Most projects were started between 1985 and 1987 and completed within the past two to three years. The site area of projects ranges from 0.5 to 29 hectares, with an average of 5.7 hectares. Before redevelopment, the constructed area ranged from 6,000 square meters to 335,000 square meters (average 53,000 square meters). After redevelopment, the total constructed area ranged from 0 to 737,000 square meters (average 141,900 square meters). Before redevelopment, the floor area ratio (FAR) of projects averaged 1:0.93. Redevelopment brought an increase in density, raising the average FAR to 1:2.5. The higher densities have enabled real estate development corporations to construct and sell commodity housing to finance their projects. Finally, although there is considerable variation in the percentage of former residents resettled on the site, ranging from 0 to 100 percent, the typical project provides on-site replacement housing for most affected households (an average 65 percent).

Table A

Profile of Redevelopment Case Studies

<u>Project Name</u>	<u>City</u>	<u>Date Started</u>	<u>Site Area</u>	<u>Built Area</u>		<u>% On-site Resettled</u>
				<u>Old</u>	<u>New</u>	
An Deng	Fuzhou	1987	0.5	6,213	0	0
Jin Wah	Guangzhou	1986	29.0	335,000	737,000	90
Xiao Fuqing	Hangzhou	1985	0.7	6,000	15,417	100
Hu Lang Garden	Shanghai	1985	1.7	12,589	84,000	100
Hui Yi Garden	Shanghai	1984	1.3	8,630	8,250	0
Jiang Gou	Shanghai	1985	1.9	26,221	88,400	0
Ordinary Citizen	Shanghai	1985	16.5	116,040	325,000	90
Tian He	Shanghai	*	0.5	13,880	17,200	45
Ying Xiang	Shanghai	1985	5.5	33,000	190,000	86
Ping Shan Rd.	Tianjin	1985	1.4	8,756	33,967	100
Wujiayao	Tianjin	1985	3.4	15,715	61,319	100

* Exact data not available, approximate start in mid-1980s.

Source: Redevelopment project surveys, 1991, 1992.

REFERENCES

- Dowall, David E. 1993. "Establishing Urban Land Markets in the People's Republic of China." *Journal of the American Planning Association*, Vol. 59, No. 2, Spring 1993, pp. 182-192.
- Fong, Peter. 1990. "Housing Reforms in China." *Habitat International*, Vol. 13, No. 4.
- Kim, Joochul. 1990. "Housing Development and Reforms in China." In *Housing Policy in Developing Countries*, Gil Shidlo, ed.
- Kirkby, R. J. R. 1985. *Urbanization in China: Town and Country in a Developing Economy 1949-2000*. London: Croom Helm.
- Shanghai Municipal Government. 1991. *Housing Demolition and Relocation Administration Implementation Detailed Regulation*. Adopted July 19, 1991.
- Shanghai Municipal Government. 1988. *Meibuyitaozhuzai 2000 Nianshanghai Dejuzhumbiao* (An Apartment for Each Family: Residential Goal of Shanghai 2000).
- Turvey, Ralph. 1957. *The Economics of Real Property: An Analysis of Property Values and Patterns of Land Use*. London: George Allen and Unwin, Ltd.
- Wong, Aline K., and Stephen H. K. Yeh. 1985. *Housing a Nation: 25 Years of Public Housing in Singapore*. Singapore: Maruzen Asia.
- The World Bank. 1993. *China: Urban Land Management: Options for an Emerging Economy*. Washington: The World Bank.
- The World Bank. 1992. *China: Implementation Options for Urban Housing Reform*. Washington: The World Bank.

