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LAND LEASING AND LAND SALE AS AN INFRASTRUCTURE-FINANCING OPTION

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In searching for infrastructure-financing options, local governments can look to their balance sheets as well as their budgets. Municipalities often have a wide array of assets on their balance sheets, ranging from infrastructure networks to public buildings, from housing to municipally owned enterprises, as well as municipally owned land. Active asset management involves deciding what to do with these assets. Should they be held and operated in their present form? Should they be re-priced so that users pay true economic costs? Or should a municipality sell some assets, marginal to basic service delivery, and re-invest the proceeds in core urban infrastructure facilities?²

Asset sales have some attraction as a way to mobilize investment resources. From a local perspective, local governments often have more flexibility in managing their assets than they do in adjusting tax rates, introducing new taxes, increasing user fees, or borrowing funds for investment—all of which may require higher-level governmental approval or be prohibited altogether by the intergovernmental fiscal framework. From the perspective of macro fiscal management, if local governments truly are disposing of assets tangential to their core mission, and using the proceeds to invest in basic infrastructure, this tightening of governmental focus without incurring debt is to be applauded.

Local governments, of course, have recognized the possibility of financing infrastructure investment through asset sales. For a period in the mid-1990s, the City of Bratislava, Slovakia, for example financed roughly 15% of its annual capital budget from privatization proceeds. As a general rule, however, asset sales of this kind have been viewed as a temporary financing expedient, made possible by government's decision to exit certain activities like provision of public housing or operation of economic enterprises that compete with the private sector. Fiscal experts have warned cities not to become dependent upon asset sales as a significant or continuing source of capital financing.

Sale of municipally owned land may be a partial exception, in that it can sustain infrastructure finance for a longer period of time. In countries where all urban land is owned by the public sector, land is by far the most valuable asset on the municipal balance sheet. It often is the most valuable municipal asset under other landholding regimes. Urban land values are created in part by public investment. They reflect the capitalized value of access to road networks, water supply, schools and other services made possible by municipal investment. It is economically appropriate therefore for municipalities to capture part of the land-value increment they create through their investment. There are various ways that increases in urban land values can be captured, but the sale of land or land rights has the advantage of

² For the role of balance sheet and asset management in municipal finance, see Peterson (2006).

producing revenue quickly and being easier to administer than betterment taxes, land re-adjustment schemes, or universal property taxation.

Moreover, municipally owned urban land is not a static asset. It can be 'created' by expanding the urban area into rural zones at the urban fringe. A legally empowered, active asset manager can also acquire additional land from current users for urban re-development, or for highway and airport construction. It can then re-sell part of the land after its value has been enhanced by public investment. Even without public improvements, urbanization and economic growth tend to drive up land prices, adding to the value of land held on local balance sheets, and raising the question of whether the municipal asset base would be more effectively deployed if some of the landholdings were exchanged for infrastructure.

This chapter examines the potential of land sales as an infrastructure-financing tool. The first section looks at the land leasing process and its implementation in China, which has made the largest-scale commitment to converting land assets into infrastructure. Many cities in China have financed half or more of their very high urban infrastructure investment levels directly from land leasing, while borrowing against the value of land on their balance sheets to finance much of the remainder. The second section places China's experience in perspective, by looking briefly at Hong Kong, from which mainland China adapted its land leasing framework, Ethiopia, a country at the other end of the prosperity spectrum that recently introduced land-leasing as a financing device for cities, and India. Land in India is not generally owned by the public sector, but the urban development authorities that have responsibility for much of urban infrastructure investment often have extensive landholdings as do other governmental institutions. These institutions have begun to turn to land development and land sales as an infrastructure financing strategy. In all of these countries, land sales either are financing, or have the potential for financing, a surprisingly large share of urban infrastructure investment.

The final section weighs the policy issues and risks associated with land sales on this scale. Monetizing publicly held land may, for a period, generate an abundant source of revenue for local governments, but it also introduces a new set of risks that can profoundly affect fiscal management. In fact, as more countries are tempted to take advantage of the boom in urban land values to finance local budgets, the type of prudential restrictions built into fiscal responsibility laws may have to be broadened to deal with these risks.

II. LAND LEASING AND URBAN INFRASTRUCTURE FINANCE: THE CASE OF CHINA

Land leasing in China involves the up-front sale of long-term occupancy and development rights. The practice was introduced on an experimental basis in 1987 in Shenzhen and other coastal cities, as part of the de facto decentralization of China's fiscal system. Up to that time, public authorities allocated land administratively and land use was free. The land-leasing reforms were intended in part to stimulate locally led economic development, by allowing cities to attract foreign investment by providing stable land occupancy rights to investors. From the start, land leasing was tied to infrastructure investment. Land leasing provided a potentially large source of income, whose revenues were to be invested primarily in infrastructure systems, further enhancing cities' competitive position for economic growth.

In 1988, China's constitution, which previously had prohibited all types of land transfer, was amended to permit land leasing while retaining public ownership of land. In 1990, the State Council formally affirmed land leasing as public policy. By 1992, Shanghai and Beijing had adopted land leasing as local practice, and it began to spread.³ Like most of China's economic development and fiscal reforms, the wave of land leasing moved from coastal experimental cities to Shanghai and the capital, then westward to the rest of the country.

Land leasing has been a key element of China's fiscal decentralization. In China, the central government retains all tax policy authority over local governments. Municipalities cannot change tax rates, introduce new taxes of their own design, or scrap dysfunctional local taxes. They need higher-level governmental approval for adjustments in user charges. As initiated in Shenzhen and applied elsewhere, land leasing was an attempt by municipalities to gain control over a revenue source genuinely within their control. Until very recently municipal governments have been free to assemble and sell land at their discretion, constrained only by the expansion of urban boundaries approved in their master plans.

Whereas China's 1994 fiscal framework reforms (see Chapter 2) have been described as a form of fiscal re-centralization, due to the increase in central government's share of shared taxes, revenue-sharing arrangements for land leasing moved in the opposite direction. Originally, the central government's share of land-leasing revenues was set at 60 percent. The split subsequently was modified to 40:60 for central and local governments, respectively, then to 32:68 and 5:95, before all land-leasing revenues were assigned to municipal governments as part of the 1994

³ The speed with which land leasing was adopted can be seen from Shanghai's records. Between 1988 and 1991, 12 land leases were granted in Shanghai. The total rose to 201 in 1992 and 3,000 in 1993. (Fu, 1996)

fiscal reforms (Chan 1997).⁴ Much of the emphasis that cities place on land leasing in China's competitive federalism framework stems from the fact that fiscal rules allow them to keep the land-leasing revenues that they mobilize and grant municipalities a great deal of freedom to act as entrepreneurs in the local land market.

The purchaser of a land lease acquires land rights for a period of 40 to 70 years, depending upon the type of property development. Land that is 'sold' and approved for development can be reclaimed by government if not developed within a specified time period. Originally, municipalities transferred land rights to developers primarily by private negotiation. In the mid-1990s, a review by the Ministry of Land and Resources found that more than 95 percent of all transfers had taken this form. (Sun, 1995) Private negotiations with developers, however, provided a fertile ground for corruption, with consequent revenue loss to government. In 2002 central authorities promulgated a new circular instructing municipalities to conduct all land leasing through public bidding at auction. Municipalities were slow to accept the new limitations (Beijing issued its order to conduct all municipal land transfers through public competition only in 2004). However, according to central statistics, the percentage of municipal land transfers occurring through auction or public bidding rose from 15 percent in 2002 to 33 percent in 2003 (China Daily, 2004b), and has continued to rise, becoming the primary form of conveyance in economically advanced cities.

Revenue Generated from Land Sales

Because comprehensive municipal budgets are not released to the public, it is difficult to put together reliable data on the magnitude of land leasing except through case studies. Table 1 summarizes information from several different case studies regarding land-leasing revenues and their size relative to total local spending or the local capital budget. Although land leasing is viewed as an infrastructure-financing tool by Chinese municipalities, there is no legal requirement to dedicate revenues to the capital budget.

⁴ The decision to assign all revenue from land leasing to municipalities in part recognized on-the-ground reality. The State Auditing Authority found that in 1991 and 1992, 80% of the land leasing revenues generated by sample municipalities were concealed from the local fiscal authority, and of the amount received by the fiscal authority 90% was assigned to the local discretionary budget rather than shared with central government according to the rules then in effect.

Table 1
Revenue from Land Leasing
Selected Cities

City	Period	Revenue Raised ^a
Shanghai ^b	1992-2004	More than RMB 100 billion, used for capital spending
Shenzhen ^c	Throughout 1990s	Approximately 80% of total local government revenues
Beijing ^d	1995-96	RMB 6.9 billion (approximately 60% of local capital spending)
Chengdu ^e	2002-2003	RMB 4.7 billion (approximately 45% of local capital spending)
Hangzhou ^f	2002	RMB 6 billion (more than 20% of total government revenues)
Guangdong Province	1992	RMB 9.4 billion (45% of total revenue of provincial government and municipalities)

a RMB 8.0 = US\$1.00

b Guo (chapter x, this volume)

c Chan (1997)

d Deng (2003)

e Author's interviews. Chengdu is capital of Sichuan Province

f Ding (2005) Hangzhou is capital of Zhejiang Province

g Sun (1995)

The studies underlying these data suggest that direct revenues from land leasing can generate a substantial part of the municipal capital budget for a period of 10 to 15 years, even when investment levels are as high as they have been in China. Urban land values in China have risen at a frantic pace. The potential for revenue mobilization is indicated by two individual land-auction transactions consummated in Shanghai, one at the end of 2005, the other in January 2006. Sale of lease rights to two land plots in downtown Shanghai generated more than RMB 6.5 billion (roughly US\$810 million), with leasing rights selling at US\$9,300 per square meter in one transaction and US\$7,500 in the other. As an indication of the volume of land leasing, Shanghai in the third quarter of 2003 leased at auction 805 hectares (8.05 million square meters) of land, mostly in the new development area of Pudong. The real estate boom has spread to western China. Chengdu, capital of Sichuan province, sold a single mixed commercial/residential site outside the central zone for the equivalent of US\$97 million, or roughly \$1,350 per square meter. The municipality

has been actively auctioning large blocks of land in new development zones in order to finance its ambitious infrastructure program.

The role of publicly owned land in urban infrastructure finance extends well beyond direct proceeds from land-leasing sales. Borrowing from state-owned commercial and development banks has financed much of the remaining urban infrastructure investment. This borrowing takes the form of balance-sheet debt typically secured by municipally owned land. Debt service often is paid by selling off the leasing rights to parcels of land whose value has been enhanced by the debt-financed infrastructure projects.

The interaction between land leasing, debt and infrastructure investment is illustrated by the construction of the outer-ring circumferential highway in Changsha, capital of Hunan Province in central China. To finance the project, the municipality transferred to a public-private agency, the Ring Road Investment Corporation, leasing rights for strips of land 200 meters wide on both sides of the highway that was to be built, totaling 33 square kilometers of land in all, of which 12 square kilometers was finished land possessing infrastructure access and development approvals. In its original state, without access to roads or infrastructure, the remaining land had very little market value. However, the plan was to sell off land parcels once the highway was built. The total cost of the second stage of the highway project was estimated at RMB 6 billion (at the time some US\$730 million). Approximately half of this amount was financed directly from sale of leasing rights to the land already having infrastructure service. The other half was financed through borrowing. The Ring Road Investment Corporation was able to borrow against the *future* anticipated value of the improved land to obtain financing from China Development Bank and commercial banks, pledging to sell off land parcels in the future, after the highway was completed, to meet debt service.

Cities as Land Entrepreneurs

The importance of land-leasing revenues to cities' fiscal capacity and infrastructure investment has turned municipal governments into land-market entrepreneurs. Municipalities try to acquire as much land as possible, as cheaply as possible, then either sell it at market rates, use it as collateral for infrastructure loans, or provide it at below-market rates to strategic (mostly foreign) investors for industrial development.

Municipalities acquire land in various ways. They can move municipal state-owned enterprises (SOEs) from central locations to the urban outskirts, where the companies have better transportation access but land is cheaper, then and sell the vacated land to developers. This re-location is part of a broad rationalization of land

use created by land pricing. In the first years of land leasing, before the regulatory framework was clarified, SOEs tried to capture all the proceeds of land leasing sales for themselves through direct transactions with developers. Municipalities fought successfully for control of the supply of land-leasing rights and land revenues. Such transactions must now proceed through the municipal Land Resource Center, subject to municipal decision-making, and with the municipal government receiving a prescribed share of sales revenue.

Municipalities can expand the urbanized area by acquiring land from rural communes and converting it to urban use. The municipality's sale price for leasing land for urban use has vastly exceeded the purchase price it pays farmers, often by a factor as large as 100 times.⁵ The scramble by municipalities to acquire land for urbanization—dubbed China's version of the “enclosure movement”—has led municipalities to stockpile land by taking advantage of (and abusing) exceptions to urban land-use limitations in their authorized development plans. One exception involves land acquired for approved economic development zones and industrial parks. The Ministry of Land and Resources found in 2004 that 6,015 development zones had been established by municipalities, of which only 1,251 had received the requisite approval of the State Council or provincial governments. In total, these municipalities had declared development zones and industrial parks covering an astounding 35,400 square kilometers of formerly rural land, most of which was serving as a land reserve for potential future development and municipal land leasing. (China Daily 2004b)

A municipality or its development agency also can designate centrally located areas of rundown housing or small-scale businesses for re-development and acquire land from traditional users under a plan that involves mandatory re-settlement. The municipality upgrades infrastructure, then sells land-leasing rights for re-development.

Perhaps the most novel form of freeing up land for re-sale involves moving city hall and all of the municipality's administrative buildings to a new location, outside the urban center, then auctioning off the vacated central land to developers. As a strategy for generating land-leasing revenues and infrastructure investment, this approach has twin advantages. It creates a new urban center where municipal offices re-locate, enhancing the value of surrounding land, which the municipality can lease, while it frees up for competitive leasing and commercial re-development very highly valued land at the existing urban center. All six of the municipalities examined in

⁵ The minimum price that municipalities have to pay for rural land has been calculated as a multiple of a commune's actual annual income from agriculture, not “market” value. In reality, there is no land market for farmers since they cannot own or lease land individually and the commune cannot sell land-use rights directly to developers or others.

the World Bank's City Development Strategies II program had either moved their city hall and administrative offices in this way, or were in the process of doing so. (Chreod 2005)

In this type of land market activity, municipalities act as an aggressive, profit-maximizing monopolist. Local officials have formalized strategic guidelines as to how municipal governments should seek to gain control over all land leasing transactions, so as to control the volume and location of land supply and maximize municipal revenues.⁶ Municipalities are required to compensate land users who are re-settled with cash and alternative housing. Analysis of the pattern of land leasing in Shanghai demonstrates that the areas leased for commercial development tended to maximize *net* leasing revenues, after compensation costs, confirming the entrepreneurial mindset of the municipality. (Fu, Somerville, Gu and Huang, 1999).

Despite municipalities' ability to create new supplies of urban land, land leasing is a transitional infrastructure-financing strategy. The supply of land available for leasing eventually will run out. Shenzhen, the pioneer in land leasing, aggressively expanded its urban boundaries for 15 years. By now, the potential for further expansion or new land leasing has almost been exhausted. Shenzhen's asset management company, in fact, has turned to buying and selling land-use rights in other urban areas of the interior of China as a way of continuing to use its entrepreneurial skills to generate revenues from land transactions. By contrast, land leasing as an infrastructure-financing tool is gathering speed in later-developing regions of Western China and the rustbelt Northeast.

In summary, China used land leasing as part of a strategy to jump-start urban infrastructure investment after decades of neglect. The 'marketization' of land in effect, converted land that was generating no economic or financial return under the old landholding system into urban infrastructure that is the cornerstone of national economic growth. Chinese authorities recognize that land leasing monetizes a finite asset and cannot indefinitely play such a prominent role in urban infrastructure finance. As discussed by Guo (chapter x), the cities that pioneered land leasing are now shifting strategy to rely more on the income streams provided by infrastructure assets to recover capital costs.

⁶ For example, the Vice Mayor of Chengdu authored a volume (Sun Ping et al 2003) emphasizing that (i) land leasing and land supply should be the exclusive responsibility of government, (ii) therefore land transactions, including those by state-owned enterprises (SOEs) on the secondary market, should go through the municipality's Land Resource Center or be approved by it, (iii) the municipality should capture for itself at least 60 percent of the net value gains resulting from the sale of leasing rights for land originally allocated to municipal SOEs, and (iv) land leasing proceeds should be used to finance municipal fixed-asset investment.

II. LAND-LEASING AND LAND-SALE EXPERIENCE BEYOND CHINA

China is a special case. The nation has experienced exceptional economic growth driven by urbanization. Its land-leasing system places land assets unambiguously in municipal governments' hands and has not been tested by a significant economic downturn. Is the financing capacity of land leasing and land sales unique to China, or is there comparable scope for revenue impacts in other places?

Hong Kong

China drew its land-leasing model from Hong Kong, where it has been applied for more than a century and has been the underpinning of urban infrastructure investment. Hong Kong's experience bears out the ability of land leasing to generate large amounts of revenue over an extended period of time. Between 1970 and 2000 Hong Kong is estimated to have realized some US\$71.1 billion (in 2000 dollars) from up-front sale of land leases (Hong, 2003), including re-negotiation at current market value of leases whose original term had expired--this for a jurisdiction with a population of approximately 6.8 million people. Most of the revenue traditionally has been used to pay for infrastructure investment and other public works, although there is no legal earmarking of land-sale proceeds.

Table 2 summarizes land-lease revenues and their relation to total public expenditure and expenditure on public works for the period 1996 to 2000. Over this period, land leasing generated proceeds that exceeded Hong Kong's total spending on infrastructure and other public works. However, revenue collection from land leasing has been highly volatile, reflecting extreme volatility in the underlying land and property market. Between 1990 and 1995, the average value per square foot of land leased at auction rose by a factor of more than four times in constant Hong Kong dollars. With the arrival of the Asian financial crisis, and uncertainty about Hong Kong's future economic role, land prices between 1998 and 2002 fell by almost 50 percent. Land market demand declined so severely that Hong Kong suspended all sales of land for commercial development for more than three years. Over the period 2001-2003, revenues from land sales plummeted almost to zero, contributing to steep fiscal deficits that at their peak reached 30% of fiscal revenues.

Table 2
Revenue from Land Leasing:
Hong Kong

Land Leasing As % Of:	1996	1997	1998	1999	2000	Average
Expenditure On Public Works	101%	229%	82%	133%	105%	130%
Total Expenditure	16%	34%	11%	18%	14%	18%

Source: Hong (2003)

With recovery in the real estate market, Hong Kong has resumed land leasing, but changed its role from supplier of pre-announced amounts of land in locations designated for development by planners, to a more passive role intended to be consistent with market forces. It adopted an Application List system, under which the government provides land only in response to developer requests at acceptable prices. It was hoped that this change in procedure would also moderate the large swings in revenues, but to date revenue stabilization has been less than hoped for. Hong Kong in its Medium Range Forecast prepared in 2003 foresaw relatively stable revenues from leasing land assets, at 12-13% of annual total government revenue. In the first year of the five-year planning period, 2004-05, actual revenue from land leasing substantially exceeded the target at HK\$34 billion, but in the next fiscal year only HK\$4 billion was realized.

The government has now convened a public consultative process preparatory to introducing a Goods and Services Tax, motivated in part by the desire to reduce exposure of the general budget to the high volatility of revenue resulting from land leasing. This reform would allow land leasing to continue as a major contributor to the public works budget, while partially insulating the operating budget from revenue fluctuations.⁷

⁷ An IMF Mission in October 2005 emphasized the importance of broadening Hong Kong's tax base. "A substantial part of non-tax revenues accrues from land sales and investment income that are very volatile." (IMF 2005)

Ethiopia

Ethiopia lies at the other end of the economic spectrum from China. It has one of the lowest per capita income levels in the world, low levels of urbanization, and economic performance that fluctuates with rainfall. Like some other African countries, Ethiopia recently has introduced land leasing into urban areas.⁸

Land leasing has become an integral part of Ethiopia's local decentralization efforts. Economic rights to the income from land leasing have been assigned to municipalities.⁹ Except for water tariffs, which some Regions now allow municipalities to adjust in light of service costs, land leasing is the only source of revenue over which municipalities have policy control. All other sources of municipal revenue are laid out in Regional Proclamations dating back a decade or more, which specify the exact amounts that municipalities can levy for each of dozens of individual taxes and service fees. (Peterson 2005)

Ethiopia does not require full up-front payment of the land-lease amount. A portion of lease payment is due at contract signing. The remainder can be paid over the lifetime of the lease agreement. Interest may or may not be charged, depending upon the type of property involved and the Region that is implementing the federal land-leasing Proclamation. Ethiopia is converting its land occupancy system from a previous regime where occupants "rent" land from the municipality on an annual basis, without formal legal protection of occupancy beyond the current year, to the "leasing" system, which is designed to give longer-term rights to land occupancy without surrendering public ownership. During the early years of the new system, much of leasing activity has been concentrated on vacant land, commercial properties, and property owners wanting to occupy plots greater than the maximum parcel size they are legally entitled to rent.

Ethiopian policy attempts to tie land-leasing revenue directly to municipal infrastructure investment. The federal land-leasing proclamation states that a municipality shall earmark 90 percent of all land-leasing proceeds for infrastructure investment. (Federal Negrit Gazeta, 2002) Municipalities are candid to acknowledge that literal budgetary earmarking of this kind does not occur, and cannot occur because of the condition of municipal accounting. However, at least in a sample of municipalities empowered with land leasing authority in Amhara and Tigray Regional States, growth in municipal land leasing revenues has coincided with a

⁸ Botswana and Mozambique are other nations that have variants of urban land leasing.

⁹ Local governments in Ethiopia are split into an "urban administration" that acts as the local agent for the Regional government in providing health and education services and a "municipal" government that provides basic services primarily from own resources.

growth in total municipal revenues and an increase in the proportion of municipal expenditure spent on capital projects.

The revenue implications of land leasing are summarized in Table 3 for the two largest cities in Amhara and Tigray Regions. The cities have populations ranging from 75,000 to 325,000. Land leasing has become the single largest source of municipal revenue, overtaking the traditionally largest source of revenue, the local fee and tax items covered in Regional Tariff Proclamations. By international standards, of course, the revenue generated from land leasing in Ethiopia is meager. The highest-valued land lease in Mekele, capital of Tigray Region, was sold at auction for approximately US\$1.60 per square meter. The infrastructure investments being financed are equally basic; they consist of modest upgrades to water distribution, road surfacing, and the like

Table 3
Revenue from Land Leasing:
Ethiopia
Municipalities in Amhara and Tigray
2003-2004

Municipality	Land Leasing As % of Total Revenue	Land Leasing As % of Capital Spending	Growth in Land-Leasing Revenue From 2002-2003
Bahir Dar (Amhara)	45.3%	140%	NA
Gondar (Amhara)	42.3%	105%	35.8%
Adigrat (Tigray)	21.5%	77%	144.7%
Mekele (Tigray)	24.2%	81%	8.1%

- a. Municipalities do not have separate capital budgets; amounts of capital spending are estimated from line item expenditures
 - b. The US\$/Ethiopian Birr exchange rate was unchanged over 2002/03—2003/04
- Source: Peterson (2005)

The potential exists for further revenue mobilization through land leasing in cities where population is growing and municipal management has an entrepreneurial mindset. A new municipal administration in Mekele, for example, was able to more than double land-leasing revenue in 2004-2005 from the levels shown in Table 3, by implementing a policy that sold a larger share of land leases at public auction and more aggressively identified undeveloped land parcels for leasing. If Ethiopia should succeed in implementing its planned conversion of the annual land rent system to up-front leasing, it would further accelerate revenue mobilization, for a transitional period.

At the same time, land leasing has introduced an unprecedented degree of volatility in municipalities' own-source revenues, especially for mid-sized and smaller urban administrations with weaker land markets. Unable to obtain revenue growth from other sources, almost all municipalities have taken the fiscally risky course of building land-leasing revenues into their future recurrent budgets.

India

As noted several places in this volume, India long has been troubled by a low rate of urban infrastructure investment. Despite the recognition of urban local bodies as a third tier of government by the 74th constitutional amendment, municipalities remain creatures of the states with low revenue-generating capacity, no authority to initiate taxes, and with rare exceptions, no power to modify tax rates on their own. Responsibility for urban infrastructure investment is scattered among many institutions in addition to municipal governments. Foremost among these in large urban areas are Urban Development Authorities (UDAs), which are agencies of the states. Political conflicts at the state level between rural and urban interests have limited the volume of resources that state budgets can direct to urban infrastructure investment through the UDAs.

In this environment, institutions have searched for other sources of urban infrastructure finance that do not require tax increases or state budget allocations. Land resources always have been part of the budgetary picture in India's cities, but they are just beginning to emerge as an important element in infrastructure financing strategy.

UDAs typically are holders of substantial amounts of urban land obtained as part of urban development and re-development projects. In new development areas, the UDAs notify land for development, acquire land under public purpose regulation, develop an area by installing internal infrastructure networks, sell or rent the land to developers and end users, and turn over responsibility for maintenance and operation of infrastructure facilities to the municipal government. In urban re-development zones, UDAs carry out similar activities. The high value of improved land in re-development projects makes it possible for UDAs to use proceeds from land sale and land rental to help finance general urban infrastructure network improvements as well as infrastructure specific to the re-development area.

The Mumbai Metropolitan Regional Development Authority (MMRDA) illustrates this process and the potential for mobilizing infrastructure finance through land sales. In the early 1990s MMRA developed from marshland a 553 acre new commercial center called the Bandra-Kurla complex. Proceeds from the development—mostly in the form of annual rent payments and development fees—

have provided MMRDA with a capital fund that it has used for a variety of initiatives, in addition to infrastructure support for the complex itself. These include co-financing a road construction program in greater Mumbai and setting up a revolving fund for subsidized infrastructure lending to other municipalities in Maharashtra, as well as undesignated contributions to other state initiatives.

A strategic initiative developed for Mumbai (Bombay First and McKinsey, 2003) has called attention to the much greater revenue-generating potential of MMRDA and other public landholders, if instead of renting land on an annual basis, they were to sell fee simple ownership rights. The proceeds of land sales then could be used to finance city-wide infrastructure, as a key part of the strategy for building Mumbai into a world-class financial center. Vision Mumbai identifies land sales as one of the most important elements in the public sector's contribution to infrastructure financing.

The potential for revenue mobilization through land sales has been heightened by India's urban real estate boom. In January 2006, in two separate auctions, the MMRDA sold land parcels in the Bandra-Kurla complex for Rs 22.9 billion (about US\$510 million), including the highest-valued urban land transaction recorded to date in India, at roughly US\$7,330 per square meter. MMRDA has said it will use the proceeds to finance infrastructure investment. Table 4 compares the revenue mobilization generated by the auction of a few land parcels within this single development complex to total annual infrastructure investment by Mumbai municipality (Mumbai Municipal Corporation) and other infrastructure financing initiatives, including the central government's first-year contribution to infrastructure investment in 63 of India's largest cities via the highly publicized National Urban Renewal Mission.

Table 4
Land Sale Revenues and Infrastructure Spending
Mumbai & India

Item	Amount (in Rs millions)
MMRDA Land Auctions Bandra-Kurla Complex January 2006	2,2950
Total MMRDA Infrastructure Investment 2004-2005	5400
Total Infrastructure Investment Mumbai Municipal Corporation 2004-2005	1,0440
Pledge for Mumbai Infrastructure Investment By State of Maharashtra As Part of Mumbai Strategic Development Initiative 2005-2006	1,0000
Central Government Funding For Infrastructure Investment and Services to Poor In 63 Major Cities, Including Mumbai, National Urban Renewal Mission 2005-2006	5,5000

Note: One million = 10 crore

Source: Data for MMRDA infrastructure spending, Municipal Corporation infrastructure spending, and State of Maharashtra pledge: Pathak (2005). "Infrastructure" investment excludes capital spending for education and health.

MMRDA's revenue mobilization from land sales reflects both the market reality of a real estate boom and a change in asset management strategy, away from annual rental of land to upfront sale of land properties. Similar initiatives to realize land values and invest the proceeds in infrastructure are being undertaken in other parts of urban India. The poorer state of Rajasthan, for example, announced at the beginning of 2006 that it was turning over to the Jaipur Development Authority for sale at auction land having a minimum auction price of Rs 5.07 billion (roughly US\$113 million), a sum that vastly exceeds annual infrastructure investment by all levels of government in the capital region of Jaipur.

As urban land sales presently are administered in India, most of the revenue proceeds accrue to agencies of state governments, especially the states' Urban Development Authorities. Land sales thus have not been an instrument of fiscal decentralization to the local level or a significant contributor to municipalities' capital budgets. The large sums generated by land sales have not, in the past, been publicly accountable, and often have been treated by the states as off-budget cash hoards that can be allocated for any politically attractive purpose. The new land

auctioning guidelines in Rajasthan represent a step forward in this regard. They require that the urban development authority transfer 15 percent of its proceeds from land sales to the fiscally impoverished Jaipur Municipal Corporation. The proportions to be transferred to the state government budget and to be retained by the UDA for its investment purposes also are specified.

Land as a Source of Infrastructure Finance

The experience reviewed in this chapter suggests that urban land can, under a variety of conditions, generate significant amounts of revenue that can help finance local infrastructure budgets. In a growing economy that is urbanizing at a fast pace, urban land values will tend to rise strongly over time, although in a highly volatile fashion. Selling land and converting the proceeds into infrastructure assets can make sense if it is part of a deliberate policy to accelerate infrastructure investment; based on the assessment that infrastructure has become a key bottleneck to economic growth and urban service delivery. This was the strategic assessment made in China in the early 1990s, and it is the strategy advocated by some analysts and policymakers in India today.

It would be wildly imprudent, of course, to think that urban land values can continue to increase at the torrid pace that China, India, and parts of Latin America and Africa have experienced from 2002 to 2006. Counting on further land value gains as a major source of financing may also be unwise. From the perspective of strategic asset management, however, the current reality of a real estate boom makes it possible to convert publicly held land into publicly valuable infrastructure at an especially favorable rate of exchange.

The impetus to convert land into infrastructure is further strengthened when municipalities have few other options for raising discretionary revenues. The countries surveyed here have fiscal frameworks that strictly limit or prohibit local tax increases. Intergovernmental rules and market conditions restrict municipal borrowing. It is understandable, then, that authorities should turn to urban land assets for financing. This phenomenon is not limited to the developing world. In the wake of Proposition 13 in the State of California (United States), which essentially froze local property tax assessments, and related propositions that restricted other forms of local tax increases and municipal borrowing, California's localities also turned to land assets as a way to finance infrastructure. New intergovernmental rules were adopted that allowed developers to issue land-based bonds to finance roads, sewer and water systems and other basic infrastructure that no longer could be financed by the public budget. Land became the collateral for a good deal of new infrastructure financing. The debt service obligation that developers assumed in order to finance

their infrastructure investment became a lien on the land, which purchasers of developed parcels acquired along with their property.¹⁰ This lien was enforced by municipal governments and billed along with property taxes, but as a legally separate item that allowed local governments to circumvent the restrictions on new taxes or public borrowing.

III. FISCAL RISKS AND POLICY CHOICES

Financing part of urban infrastructure budgets from land sales appears to be feasible in countries that either have public ownership of land or institutional arrangements that allow special development authorities to acquire and sell land associated with infrastructure development projects. Reliance on land sales for revenue, however, creates special risks that need to be taken into account in the intergovernmental fiscal framework.

Linkage between Land Sales and Infrastructure Investment: In financial terms, sale of an income-producing asset closely resembles borrowing. In both cases, up-front payment is received in exchange for a future revenue stream. The foregone revenue stream in the case of asset sales may take the form of recurring revenues from user fees, annual land rents, or lost proceeds from the sale of land at a future date when it may be more valuable.

Municipal land and asset sales therefore raise many of the same intergovernmental fiscal concerns as municipal borrowing. One danger involves use of the proceeds of asset sales to finance the municipal operating budget. The review in this chapter suggests that some municipalities with access to land-sale revenues have come to depend upon these revenues for more than investment purposes, and that receipts spill over to become part of the operating budget. The fiscal risk is that municipalities become dependent upon asset sales for covering recurring costs, and, at a future date, when the assets are gone, face more severe budget shortfalls, which they want national government to absorb.

In the case of borrowing, a common component of fiscal regulation requires municipalities to use long-term borrowing only to finance investment. This Golden Rule could similarly apply to asset sales: municipalities must use the proceeds of asset sales to finance investment. Ethiopia has attempted to follow this approach by introducing into its land-leasing proclamation the requirement that 90% of the proceeds from municipal land leasing be used for urban infrastructure investment,

¹⁰ These are termed Mello-Roos bonds after the authors of the bill that established this mode of financing for new community infrastructure. See California Debt and Investment Advisory Commission (2000) and Chapman (1998).

and China for a time required that a portion of lease sale revenue be dedicated to urban infrastructure construction. Local governments have not applied this rule literally in Ethiopia, and, given the fungibility of budgets, it is impossible to ensure that asset sales are used to fund incremental investment. However, the requirement to enter asset sales as capital revenue in the capital budget can help maintain the policy perspective that one type of asset is being exchanged for another on the municipal balance sheet and that land is not being sold to finance operating expenses.

Paradoxically, the Golden Rule limitation would not assist China in managing the principal fiscal risks that have arisen there from municipal land sales. National authorities fear that municipalities will be *too* aggressive in using land sales to finance investment, and that excessive investment in urban fixed assets will contribute to overheating the economy. To limit such risks, central government has resorted to more direct restrictions of the kind used to limit or prohibit municipal borrowing. For a six-month period in 2004, municipal land purchases for urban development were halted altogether by central regulation, partly as a fiscal measure to restrain excessive local investment. Central authorities have continued to ban municipalities from acquiring land to create new special economic zones or industrial parks, out of fear that the practice was stimulating inefficient investment and would require massive amounts of infrastructure spending to make the new zones functional.¹¹

Risks of a Real Estate Bubble: Land prices have the advantage of long-term buoyancy with respect to economic growth and urbanization. However, they are extremely volatile. Although at this writing, land prices are rising at a rate of 30-40% per annum in India's large cities; they declined over the period 1998-2002 in response to the Asian financial crisis and other factors. Hong Kong's experience illustrates the threat to overall fiscal stability that can result from revenue dependence on land sales at a time of decline in the real estate market.

The greatest financial risk manifests itself when land and property values become the primary basis for borrowing. Municipal land is the principal collateral for borrowing by Chinese municipalities' Urban Development Investment Corporations. China's banking system, which has concentrated on cleaning up non-performing loans, many of them to municipal entities or local State-Owned

¹¹ The Vice-Director of the central government Department of Land Use and Management estimated that RMB 200 million (US\$25 million) of infrastructure was required to develop each square kilometer of an industrial zone. At that rate, more than RMB 600 billion (US\$75 billion) would be required to develop only 10 percent of the undeveloped areas municipalities had claimed for development zones in 2004. In the Vice-Director's words, municipalities' excesses implied that "large sums of money will be 'buried' in the soil." (China Daily 2004 c)

Enterprises, would be placed at high risk in the event of a collapse in land or real estate prices. In fact, many of China's infrastructure-financing policies have depended upon continually *rising* land values for their viability.

Sound fiscal management may require intergovernmental rules that restrict the way land values can be used to support municipal borrowing. One of the first steps that China took (in 2003) to restrict land-based municipal borrowing was to require that banks making loans for municipal investment appraise land at its current market value rather than at its projected value after the completion of infrastructure facilities. Prior to adoption of these controls, it had been common for banks to lend against future land values. This exposed their lending both to project risk—the risk that the proposed new special economic zone or new urban center would not be completed as proposed—and to political risk. The close ties between the local branches of state banks and local political authorities made it possible to incorporate highly optimistic, or speculative, projections of future land values as the basis for lending.

The State of California, in passing legislation that permitted municipalities to authorize developers to finance infrastructure through land-based bonds recognized the risk that developer projects would not be completed as proposed and required that land used to collateralize bonds have a current market value appraisal of at least three times the principal amount of debt issued.

The Entrepreneurial Municipality: Incentives and Distortions

In the end, the greatest challenge to the intergovernmental fiscal system lies in deciding how much entrepreneurial freedom to grant municipalities as land market players and how much importance to assign to municipal infrastructure investment vs. the claims of other potential beneficiaries of municipal land value increases.

Mobilizing large amounts of infrastructure financing from land sales requires a motivated, entrepreneurial municipality that has freedom of action to assemble land parcels, sell them at market prices, and keep most of the profits for investment. The land market is not an ordinary competitive market, however. Municipalities have potential monopolistic power over land supply, and local governments and land development agencies are likely to have far more political power at their command than farmers, rural communes, poor households, and small businesses from whom the municipality acquires land. This imbalance lies at the heart of intergovernmental regulatory rules that are needed to define and constrain municipal governments as players in the local land market. Rules not only define how far municipalities can go in generating land profits, but they indirectly define how far the intergovernmental system will go in making a priority of municipal infrastructure investment. The land

value gains that municipalities use to finance infrastructure investment also are claimed by farmers, who demand that they should receive market value for the land taken from them, by the poor, who demand adequate compensation and replacement housing in return for mandatory re-settlement, as well as by private developers and others.

China and India represent different starting points in defining the intergovernmental rules that allocate benefits from land appreciation. China started by assigning virtually all power over land acquisition and land disposition to municipalities. This assignment of institutional power allowed municipalities to move virtually unchecked to convert land rights into infrastructure assets. More recently, resistance from farmers and the poor has forced government—first individual municipalities (Zhu 2004), then the national government—to adopt regulations that increase compensation levels, introduce hearing procedures to strengthen the rights of parties whose land is being taken, and prohibit municipalities from acquiring or re-developing certain types of land without express authorization of higher-level governmental authorities. These steps have slowed somewhat the pace of municipalities' land-to-infrastructure conversion, though many conflicts over municipal land acquisition remain unresolved.

India started with rules that placed more obstacles in the path of municipalities and development agencies that wanted to mobilize investment financing through land acquisition and land sale. In Mumbai, residents of Dharavi, the largest slum in East Asia, won the right, if registered before 1995, to have new housing provided for them free of charge in the same area as part of any redevelopment project. Newer residents have exerted political pressure for comparable compensation. This protection has meant that public profits from re-development and land sales in Dharavi will be channeled primarily to housing for the poor rather than city-wide infrastructure. Other restrictions direct India's urban development authorities to provide land at the urban fringe to middle-class applicants at highly subsidized rates, not at market rates that would generate a profit available for investment. Such restrictions have made it difficult to mobilize surplus financing through land sales and target it to infrastructure improvements. In the last three years, however, Mumbai has, with great publicity, launched a redevelopment effort expressly designed to emulate Shanghai's development. The initiative focuses on re-development of publicly held land, and proposes to generate financing for general infrastructure in part by claiming a greater share of the revenue generated by land sales for public investment.

As long as urban land prices continue to rise, institutional conflict over how to allocate the benefits of land value gains will continue, and likely intensify. Municipal infrastructure investment is one claimant for increased funding, but it

must compete with the demands of social groups that have a stake in urban land and land values. Whenever large sums of money are generated by off-budget transactions, there also is the potential for political wastefulness and corruption. Clear institutional accounting for the revenues generated by land sales and the uses of funds, whether for infrastructure or other purposes, is the first step toward responsible management of increasingly valuable urban land assets.

REFERENCES

- Ahmad, Ehtisham, Li Keping, Thomas Richardson, and Raju Sing. 2003. "Recentralization in China?" in Ehtisham Ahmad and Vito Tanzi (eds.), *Managing Fiscal Decentralization*. London: Routledge.
- Bombay First and McKinsey & Company. 2003. *Vision Mumbai: Transforming Mumbai into a World-Class City*. Mumbai.
- California Debt and Investment Advisory Commission. 2002. *1999 Annual Report*. Sacramento, CA.
- Chan, Kam Wing. 1997. "Urbanization and Urban Infrastructure Services in the PRC," Chapter 3 in Christine P.W. Wong (ed.), *Financing Local Government in the People's Republic of China*. Asian Development Bank and Oxford University Press: Hong Kong.
- Chapman, Jeffrey I. 1998. *Proposition 13: Some Unintended Consequences*. Public Policy Institute of California. Berkeley, CA.
- China Daily. 2004a. "Land Auction Enthusiasm Still Missing"
www.chinadaily.com.cn/english/doc/2004-06/21/content_341228.htm
- China Daily. 2004b. "Nation Clamps Down on Land Abuses."
www.china.org.cn/english/china/88003.htm
- China Daily. 2004c. "China Cancels 4,800 Development Zones."
www.chinadaily.com.cn/english/doc/2004-08/24/content_368120.htm
- Chreod, Ltd. 2005. *Report to World Bank on City Development Strategies II*. Ottawa, CA.
- Deng, F. Frederic. 2005. "Public Land Leasing and the Changing Roles of Local Government in Urban China," *Annals of Regional Science*, Vol. 39, No. 2, pp. 353-73.
- _____. 2003. "Political Economy of Public Land Leasing in Beijing, China," Chapter 10 in Stephen C. Bourassa and Yu-Hung Hong (eds.), *Leasing Public Land: Policy Debates and International Experiences*, pp. 229-50. Lincoln Institute of Land Policy. Cambridge, MA.

Ding, Chengri. 2005. "Property Tax Developments in China," *Land Lines*, Vol. 17, No.3, Lincoln Institute of Land Policy. Cambridge, MA.

Fu, Yu-Ming. 1996. "Urban Land in China's Economic Reform," in *City Economist*, City University of Hong Kong.
www.cityu.edu.hk/ef/english/ce96_8.htm

Hong, Yu-Hung. 2003. "Policy Dilemma of Capturing Land Value under the Hong Kong Public Leasehold System," Chapter 7 in Stephen C. Bourassa and Yu-Hung Hong (eds.), *Leasing Public Land: Policy Debates and International Experiences*, pp. 151-78. Lincoln Institute of Land Policy. Cambridge, MA.

_____. 2003. "*Can Leasing Public Land Be an Alternative Source of Public Finance?*" Working Paper WP96YH2, Lincoln Institute of Land Policy. Cambridge, MA.

International Monetary Fund (IMF). 2005. "Hong Kong SAR: Preliminary Conclusions of the IMF Mission." www.imf.org/external/np/ms/2005/102505a.htm

Pathak, Pushpa. 2005. "Sub-National Government Expenditure: Mumbai." Report prepared for DFID and World Bank. Washington, DC.

Peterson, George E. 2006. "Municipal Asset Management: A Balance Sheet Approach," in Olga Kaganova and James MacKellar (eds.), *Managing Government Property Assets: International Experiences*. The Urban Institute. Washington, DC.

_____. 2005. "Report and Recommendations on Municipal Finance Situation in Amhara and Tigray Regions," The Urban Institute. Washington, DC.

Sun, Ping et. al. 2003. *Case Study for City Management in Chengdu* (Chinese). Chengu.

Sun, Yinh-hui. 1995. "China's Land Market: Current Situation, Problems, and Development Trends," Urban Management Programme for Asia-Pacific.
www.serd.ait.ac.th/ump/OP20.htm

Zhu, Jieming. 2004. "From Land Use Right to Land Development Right: Institutional Change in China's Urban Development," *Urban Studies*, Vol. 41, No. 7, pp. 1249-68.

_____. and Loo-Lee Sim. 2005. "A Transitional Institution of the Emerging Real Estate Market in Urban China," *Urban Studies*, Vol. 42, No. 8, pp. 1369-90.

ACRONYMS

SOE	State Owned Enterprises
UDA	Urban Development Authority
MMRDA	Mumbai Metropolitan Regional Development Authority