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Financing Indian Cities

Opportunities and Constraints in an Nth Best World

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Abstract

This paper examines international experience with mobilizing funding for both capital and recurrent costs for municipal infrastructure with a view to identifying areas where India could improve its system of financing infrastructure in cities. Based on international data, the analysis shows that there is indeed a wide range of models for funding municipal infrastructure across a group even as relatively homogeneous as the European Union. Although a number of different models operate in countries with very good services, important features of India's municipal finance system stand out. The spending per capita is exceptionally low, even when compared with local governments with few functions. The real estate sector generates meager tax revenues, but transfers from higher levels of government are also meager. Turning to cost recovery models for services,

the paper examines international evidence on cost recovery. In practice, a surprisingly large number of countries, including high-income countries, subsidize basic municipal services, particularly in water supply and sanitation. Analysis shows that these subsidies often have perverse distributional effects. Likewise, pricing schemes designed to skew subsidies to low-income households often have unintended distributional effects. Again, evidence from urban India suggests that cost recovery is exceptionally low, not only in absolute terms but relative to the experience of other low and middle-income countries. The paper concludes with a discussion of some of the measures that should be considered for improving finances in Indian cities, including land monetization and capital grants systems designed specifically for reaching secondary cities and towns.

This paper—a product of the Finance, Economics and Urban Development Department, Sustainable Development Network in collaboration with the Wolfensohn Center for Development at the Brookings Institution—is part of a larger effort in the department to understand international experience and identify directions for improvement in mobilizing urban infrastructure finance in fast-growing economies. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at pannez@worldbank.org.

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Financing Indian Cities: Opportunities and Constraints in an Nth Best World

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Section I. The Elements of Urban Infrastructure Finance

Accelerated urbanization is the inseparable companion of the take off to high growth and modernization of agrarian economies. Increasingly congested cities facing infrastructure shortages, rapidly rising real estate prices and squalid slums—among the many growing pains that urbanization brings—are a sign of a healthy and diversifying economy. This is why urban development presents challenges to economists and policy-makers alike. The high densities and tightly packed economies of cities are productive, offering significant economies of agglomeration. But to keep cities productive and livable requires increasingly sophisticated and expensive infrastructure and new fiscal arrangements to finance the many public goods that cities need. As Arthur Lewis (1977) has underscored, making the dual transition to industrialization and urbanization makes tremendous demands on any country's capacity to mobilize investment finance. There are no simple formulae that enable setting unambiguous priorities – slum upgrading first? Or investments in public transportation? Clean water supply or better city roads? Pollution abatement or better policing? All of these are vitally important government investments, but traditional tools of economic analysis are not well suited to capturing the many interdependencies across often costly investments in long-lived networks. Third, cities critically depend on government investments, but identifying and mobilizing sources of financing is extraordinarily difficult. Full cost recovery through user charges is difficult not only because of the ubiquitous spillover effects, but also because many who live and work in cities are poor, even if they are far more productive than in the countryside. Service providers that are chronically in catch up mode to keep pace with a growing population are hard pressed to build the sort of credibility that is needed to establish a disciplined payment culture. The choices for local taxation on the other hand are limited and not always the most efficient to collect because economic agents can move to lower tax environments.

Lessons from international experience can be interesting in this context not because they can be replicated, but because they can give us sense of how different instruments can be combined to achieve results in the n^{th} best world of urban infrastructure finance.

India is only about 30% urbanized, and its economy is growing rapidly, even in the face of the dramatic global economic downturn that started in the fall of 2008. Most of the urban transition is yet to come, and supporting this structural change in the economy and society will surely constitute one of the major challenges of the 21st Century. Currently, spending on both investment and operations costs for urban infrastructure in Indian cities is quite low by international standards. (Mohanty: 2007) and Sridhar and Mathur (2009), and expanding the financial resources available for urban infrastructure is thus a significant priority in India. This paper reviews international practice with regard to structuring financing systems for cities, and considers some of the options that India may wish to consider as adapts its fiscal system to the growing challenge of urbanization.

Table 1.1a below outlines the many ‘moving parts’ that make up a system of infrastructure finance for cities. These are the sorts of instruments that may be used to mobilize funds, smooth out capital expenditures in line with revenue generation, and the types of infrastructure spending that need to be undertaken in cities. Table 1.1b enumerates some of the most important environmental factors that affect how any particular structural element in the financing system may operate.

These two tables illustrate a few important points about systems of urban infrastructure finance that will be elaborated further in the paper:

- 1) With so many different structural elements at play in urban infrastructure finance, there is a very wide variety of permutations and combinations available for organizing the responsibilities for the use of funds, and the sources generated to finance them. As we will discuss further in Section 2, there is considerable variation in arrangements across countries. Strong normative conclusions on universal “do’s and don’ts” are hard to come by. IMF (2009) seeks to draw lessons on what sorts of arrangements work best for overall budgetary management in decentralization. The list of recommendations is short and rather general, necessarily leaving considerable scope for tailoring specifics to country context and requiring considerable judgment to assess how much deviations from these principles really matter. (e.g. “The sequencing of decentralization matters, as resources should be made available to subnational governments *pari passu* with the assignment of spending responsibilities.” P.3)
- 2) Urban infrastructure finance systems are necessarily structurally more complex than for example a national government because of the interdependencies across levels of government. This complexity arises not only from administrative divisions, but also geographical dispersion of cities. Even an autocratic unitary government needs to manage communications and rules of engagement in far flung places². The institutional environment variables in table 1.1b 1 illustrate some of the most important areas of articulation across the system.
- 3) While the structures of urban finance and accompanying institutional arrangements may vary considerably from one place to another, it is difficult to predict performance of an urban finance system on the basis of these variables. Well –functioning systems generating solid funding for infrastructure expansion and operations can look very different. Good finance systems can be

² Keay (2008) offers an interesting recount of the Indian Mughal Emperor Akbar’s innovations of administrative arrangements to consolidate his hold over conquered kingdoms. Rather than delegating full control of geographical areas to a loyal ally, he parceled out specific functional responsibilities to his agents in the field.

made to work from very different initial conditions. We discuss in Section 4 some of the different instruments available that can be tailored for specific circumstances.

- 4) The environmental variables mentioned in Table 1.1b are essential in considering how a structural shift in the system will operate, and how best to expand the sources of finance for a given city. The remainder of this section discusses some of the most important of these.

Table 1.1a The Elements of an Urban Infrastructure Finance System

Uses of Funds	Sources of Funds
Capital Spending	Financial Transfers from higher Levels of Government
Maintenance and Replacement	Shared Taxes
Operations and Administration	Tied Subsidies from Higher Levels of Government
Costs	Infrastructure in Kind provided from Higher Levels of government
For all of the following types of infrastructure	Private Direct Investments (includes PPPs)
1) Core Infrastructure	Asset Management/Balance Sheet Re-adjustments including land sales and leasing
Services of which:	
Water Supply and Sanitation including Drainage (WSS) and Electricity	Fees associated with regulatory powers such as Development Fees and Sales of Development Rights
Solid Waste Collection and Disposal	Local Taxes of which:
Urban Roads	Property Taxes
Public Transport	Business Taxes
Street Lighting	Income Taxes
2) Economic Infrastructure	Sales Taxes, which can include energy taxation
of which:	
Airports	Other Miscellaneous Fees and Levies such as octroi, market leases etc.
Expressways	
Intra and Inter-regional Connectivity	Expenditure Smoothing Instruments (not additional finance)
	Borrowing from the Banking system: commercial and specialized banks
	Capital Market Operations: Bond Issuance
	Overdues to government and parastatals

Table 1.1b Key Variables in City Structure, the Local Economy and the Institutional Environment

Types of City
National or Provincial Capital in Federal Systems
Major Metropolitan Area with diversified capital base
Secondary City: economy often quite specialized
Small Cities and Towns
Features of Operating Environment
Degree of Regulation/Repression of Real Estate Markets in Cities
Demographic dynamics of cities—growing rapidly, stable or declining
Extent of Financial Sector Development
Framework for Fiscal Responsibility across levels of Government
Framework for Addressing Claims of Creditors against Entities(including governments) responsible for Providing Essential Services
Degree of Administrative Autonomy accorded Lower Levels of Government
Credibility and transparency of government at all levels
Competitive Democracy vs Single Party or Authoritarian Systems
Role of different levels of government in historical political shifts (e.g. independence, liberation)

Structure of the Paper

In Section 2, we present some international examples of urban finance systems and compare those with India. Section 3 discusses international experience with cost recovery in certain key urban services of WSS and electricity, and to a lesser extent urban transportation. Section 4 discusses some of the key features in the operating environment and the specific financing needs in Indian cities and possible financial instruments suitable for different types of cities. Section 5 offers some considerations for future reform of urban finance in India.

Section 2: Perspective from International Experience with Municipal Public Finances

Much can be learned from examining municipal finances across countries. This is not because it is easy to draw out norms for a 'good' financing system on the basis of what other countries have done. Rather it is because there is so much variety in the structure of local financing across countries. For this reason, we start this section with a review of selected countries in the European Union. These countries have by and large all established good municipal service delivery systems with adequate coverage and reasonable operating performance and reliability. These countries are all much more urbanized than India, and have considerably higher incomes. Considering India's rapid income growth, reaching the level of delivery and quality of municipal services in any one of these countries would be a reasonable medium term goal for India's cities. Hence it is of interest to see how municipal finance works in these countries. Because the European Union places quite a strong emphasis on sub-national government, reporting is fairly consistent, making it possible to compare a wide range of countries within this relatively homogeneous group. Table 2.1 sets out some of the key variable in municipal spending, and compares them with India's.

Municipal spending patterns across the EU vary quite considerably across countries: nonetheless India's spending levels are very low.

The differences across countries within this group are striking. Municipal spending as a share of GDP and municipal spending as a share of total government spending vary a great deal. Denmark is the wealthiest country, has the highest share of total government spending as a share of GDP at 53%, and the highest share of municipal spending in total government spending in the group at 45%. It is in most respects an outlier. Most of these countries devote somewhere between 35 and 45% of GDP to total government spending. India's total government spending is very close to the lower end of this range. Incidentally, this variable bears little relationship with per capita income in this group of countries. Here Ireland is the outlier, with the highest income and the lowest share of government spending as a share of GDP. Municipal spending as a share of total government expenditure clusters around 15-20% in this group. It is noteworthy here that this variable bears little relationship to the level of urbanization in the sample. Malta has lowest share of municipal spending in total, comparable to India's at 1.6%, while it is 95% urbanized. Some of the countries in this group are federal, but municipal spending tends to dominates higher tier government spending in all countries but Spain³. Again, however, there is no systematic relationship

³ This is also true for Germany and Belgium.

between a strong federal structure and lower per capita spending at the municipal level. However, spending per capita at the municipal level tends to go up with per capita income, with all countries with per capita income above 20,000 euros spending 1000 euros or more per capita at the local level. This one structural variable seems to predict to some extent local spending, even in widely differing systems. Overall, this table illustrates that there are many different ways to structure public finances to deliver good services at the local level

Table 2.1 Sub-National Government Spending Aggregates--Selected Countries of the European Union 2005 and India

Sub National Government Spending--Selected Countries of the European Union and India

Country	Municipal Spending Euro Per Capita	Municipal % of Subnational	Municipal Spending as % of GDP	Total Government Spending as a Share of GDP	Municipal as % of Total Government Spending	GDP Per Capita Euro 2005	GDP per Capita US \$ PPP 2008	% Urban
Malta	75	100%	0.6%	45.0%	1.3%	11,745	24,700	95%
Bulgaria	180	100%	5.9%	39.5%	14.9%	2,835	12,394	70%
Slovakia	360	100%	6.8%	38.0%	17.9%	7,075	22,081	56%
Poland	540	92%	12.0%	43.3%	27.7%	6,405	17,625	62%
Hungary	810	75%	9.7%	49.9%	19.4%	8,815	19,329	66%
Spain	1,000	24%	5.0%	45.0%	11.1%	20,933	31,955	77%
Ireland	2,620	100%	6.7%	34.4%	19.5%	38,844	44,195	60%
France	1,220	81%	8.8%	53.7%	16.4%	27,348	34,045	77%
Finland	5,960	96%	19.0%	50.5%	37.7%	29,904	35,426	61%
Denmark	9,210	72%	23.6%	53.1%	44.5%	38,433	37,304	86%
Memo Items:								
Memo Item: India Rs. Avge 1999-2004	678	5%	0.8%	33.8%	2.3%		2,972	29%
Rs. Converted to Euros	13							

Sources: Dexia:2008 and Mohanty et alia: 2007, World Development Indicators.

Comparing all these countries to India shows it to be an outlier in most respects, even when taking into account the low level of income in India. The country in the EU whose finances appear to most resemble India's is Malta, a tiny country with a population of only 400,000, a mere neighborhood in one of India's major cities. Bulgaria's per capita income is six times that of India, but spending at the municipal level is 18 times that of a sample of 35 of the larger municipal corporations in India. India's municipal spending as a share of sub-national spending, at only about 5%, is a small fraction of even the most federalized country in this group, Spain. This is particularly noteworthy given India's size and complex city system.

Most of these countries are smaller in total population than the typical Indian state. While Ireland has the lowest share of government spending in GDP in the sample, one that is close to India's, and it is a relatively centralized country in terms of spending responsibilities, still its share of municipal spending in GDP eight times that of India's. While India's GDP per capita has increased 70% since 1992, it appears that the share of GDP spent at the municipal level remains unchanged since that time. Even correcting for the difference in urbanization levels, India's spending patterns appear highly centralized, be it at the state or central level.

Financing patterns for local government spending show even greater variability than on the expenditure side: India's cities make do with fewer resources from higher levels of government while working from a low-yielding revenue base.

Table 2.2 provides basic data on the structure of revenues in the European Union. In this case, the diversity across countries is even more striking than on the expenditure side. Countries are shown in descending order of share of own source taxes in total revenues. The share of own source taxes in total ranges from about 70% to nil for small countries like Malta and Latvia. Likewise shared taxes range from nil to as much as 44% of revenue for local governments. Practices differ in the use of shared taxes as well. In some countries, local governments may 'piggy back' a local tax at a rate they determine, on to the base of tax collected at a higher level. In others, local governments simply receive a share of the tax without any input into rates. There is much more regularity in the share of own source revenues as a share of total within this group of countries. In all but four cases, local governments depend on outside sources for 40% or more their total revenues. In all but seven cases, outside revenue sources account for more than half of the total.

On this dimension, India is exceptional. No country in this grouping requires its local governments to be so financially independent. There is some variability within this average for India. Tamil Nadu, in which devolved revenues accounted for about 40% of total revenues in 2003-2004⁴, seems to follow a pattern of financing much more similar to the EU countries presented in this sample. However Tamil Nadu remains exceptional within India. The sample of cities in Mohanty et alia (2007) represents thirty five metros, which are likely to be more self-sufficient than smaller places. Nonetheless, evidence from Kundu(1999) and Mathur(2001: 32) strongly suggests that introducing these nuances in the analysis does not change the overall picture. India's urban local governments must rely upon their own resources far more than most countries.

⁴ Department of Municipal Administration, Government of Tamil Nadu

If local tax bases and user charges were particularly vibrant sources of funding in India, as in the case of South Africa (Van Ryneveld: 2007: 189) where revenues from these two sources amount to 18.8% of GDP, such autonomy might be a more viable proposition. But this is not the case in India. In spite of their buoyant local revenue resource bases, local governments in South Africa receive about 16% of their funds in the form of grants, so that total local government revenues reach 22% of GDP. Brazil's municipalities do not have the buoyant own revenue sources that South Africa's have. About 1.2% of GDP is collected in own revenues by the metro municipalities, and 1.5% of GDP in total. The property tax accounts for about 40% of own tax revenues in the large metro areas. But, in Brazil, even the metro cities receive over 55% of their revenues in the form of either shared taxes or grants. This is what permits them to achieve much more substantial spending levels as a share of GDP , 7.2% of GDP in 2002 (de Mello: 2007:64) comparable to the lower end of the range for the European Union sample shown above. Brazilian and South Africa municipalities spend respectively over \$160 and \$460 per person.

Property taxes are levied in all countries of the EU, but not always at the local government level. Their role in local government own revenue is very wide ranging. Those countries where it is the most significant, the UK and Ireland, are certainly not among the most self-sufficient, with local governments relying on outside sources for over 60% of revenues. This pattern is similar to the United States, where 75% of local revenues come from the property tax, and intergovernmental transfers amount to nearly 50% of local revenues. Among those countries in the EU whose municipalities are highly self-sufficient for raising revenues, they do not rely heavily on the property tax.

One may conclude that India's municipalities suffer from multiple structural constraints. The principal source of taxation available to them is the property tax, but this tax rarely amounts to more than about 1-2% of GDP in OECD countries, and a fraction of that in India. Chronic resource difficulties are likely to be the lot of India's cities if they are to remain so self-sufficient and rely so heavily on the property tax—even if property tax revenues dramatically improve, as they could do over the medium term⁵. A stronger culture of cost recovery could make user charges a more viable source of finance in India's cities, but South Africa's example is exceptional, relying as it does on amalgamation of high income neighborhoods with very high quality services with poorer townships in the city service base. In any case, as the next section shows, a dramatic improvement in revenues from user charges is unlikely to be achieved in the near term. The bottom line is that, while India's cities may be admirably self-sufficient, they are chronically underfunded. This underfunding has consequences; Mathur (2001:36) has documented that

⁵ See Mathur (2009) for a review of the issues and potential for improving of the property tax.

the level of spending on core services in India's cities is uniformly below established norms and standards.

Table 2.2 Sub-National Revenue Sources—European Union 2005 and India

Breakdown of Sub-National Revenue-Selected Countries of the European Union

2005								
	Local Government Tax as % of GDP (includes shared taxes)	Own Source Taxes as a % of Total Revenue	Property Tax as Share of Own Source Taxes	Other Revenue as a % of Total Revenue	Shared Taxes as a % of Total Revenue	Grants as a % of Total Revenue	Own Source Revenues as a % of Total Revenue	GDP per Capita Euros
Sweden	17	69	0	9	0	22	78	31,861
France	4.5	49	28	13	4	34	62	27,348
Denmark	16	49	8	25	3	23	74	38,433
Finland	8.7	43	6	26	4	27	69	29,964
Italy	6.3	34	58	8	10	47	42	24,281
Luxembourg	1.8	34	5	22	0	44	56	65,716
EU Average	-	27	-	16	20	37	43	22,344
Belgium	2.1	27	43	16	20	37	43	28,503
Spain	12	25	48	9	24	42	34	20,933
Portugal	2.1	25	38	31	4	40	56	14,111
Slovenia	2.7	17	68	22	40	21	39	14,119
Netherlands	1.8	17	47	27	0	56	44	31,192
Poland	4.1	15	71	16	22	47	31	6,405
Germany	3.8	15	27	15	42	28	30	27,219
UK	1.8	15	100	24	12	49	39	29,968
Hungary	4.3	13	13	41	16	29	54	8,815
Romania	6.1	12	62	6	75	6	18	3,679
Slovakia	3.8	12	63	22	32	34	34	7,075
Bulgaria	0.5	10	25	26	30	34	36	2,835
Austria	4.8	9	16	25	33	32	34	29,798
Ireland	0.4	9	100	26	0	65	35	38,922
Czech Republic	4.8	6	23	12	43	39	18	9,803
Lithuania	2.9	5	88	10	30	55	15	6,055
Estonia	4	4	77	17	44	34	21	8,316
Malta	0	0	na	20	0	80	20	11,745
Latvia	5.2	0	na	13	47	40	13	5,657
India 1999-2004 35								
Municipal Corporations	0.3	46.5	-	47.6	3.4	2.5	94.1	

Source: Dexia (2008) and Mohanty et alia (2007)

Section 3. Cost Recovery Models for Urban Services

Cost recovery for urban services is no simple matter of pricing the service to users at marginal costs as is the case of private goods. Urban infrastructure services represent a mix of public, private, and semi-private goods. Spillover effects are ubiquitous in the dense environment of cities, and they affect optimal economic pricing. Some services such as roads and bridges and public transport have declining marginal

costs over a significant range, so marginal cost pricing does not recover costs. These services are also, to very different degrees, excludable⁶, so it is not always possible to charge for use, even if it would be efficient to do so. For public goods such as green spaces, it is difficult to recover costs directly. On the other end of the spectrum are private goods that are largely excludable⁷. These services often comprise a substantial share of the urban cost base, and user charges are a means of recovering costs.

Water Supply and Sanitation (WSS) and Electricity

Water and electricity are very often provided by separate utility companies that, unlike government departments necessarily maintain accounts of their costs of production, so there is ample data to consider how they recover costs in user charges, and international practices are particularly well documented. This section starts with a discussion of utility cost recovery and subsidy policy for urban electricity and water services⁸. Practice in this area worldwide has a number of important similarities.

Both WSS and electricity are widely subsidized—and WSS is particularly heavily subsidized.

First among these is the widespread prevalence of subsidies. Utilities in poor and rich countries alike subsidize water and sanitation services. Higher income countries do so less than low income countries, as might be expected, but subsidy use is common and sometimes significant even in all parts of the world. Table 3.1 illustrates this for an international sample of WSS utilities. Nearly 10% of high income country water utilities charge tariffs that are not high enough to recover most of operations and maintenance (O&M). Fully half of their utilities do not have tariffs high enough to recover any capital costs. Even in upper middle income countries, a substantial share (39%) of utilities do not fully recover O&M, and the same share recover no capital costs. In low income countries, only a little over ten percent of utilities even cover most of their O&M costs. Regional patterns suggest that factors other than income alone are at work. For example, although the Middle East and North Africa region is a mix of upper and lower middle income countries, the percentage of utilities that do not recover basic O&M is much higher than the average for both lower and upper middle income groups. Similarly South Asia and Europe and Central Asia perform below their respective income groups on this same measure. Indeed the Latin America and Caribbean region is the outlier amongst the regions, resembling quite closely high income and OECD country cost recovery performance, while other regions achieve a great deal less.

⁶ Excludability refers to goods to which access may be denied if users do not pay. Network services like water and electricity where access to the network can be stopped are good examples.

⁷ Water services in cities of many poor countries suffer from high enough rates of unaccounted for water, often in the 30-40% range, that substantial pilfering is probably taking place and effective excludability is questionable.

⁸ This section relies heavily on a recent book (Komives et alia: 2005) synthesizing a number of case studies of utilities in developing countries. It is a comprehensive treatment of subsidy practice and impacts, and is strongly recommended as a reference for those interested in utility pricing practice and subsidy impact analysis.

The widespread use of subsidies world-wide both for O&M and capital spending for WSS utilities stands in stark contrast to the long-standing recommendations of donors and international agencies. On the positive side, there is certainly room for improvement, particularly in O&M cost recovery, and the LAC region utilities have shown that these improvements are achievable, at least in already highly urbanized countries⁹. From a pragmatic perspective however, for rapidly urbanizing countries, among them India, these results underscore the difficulty of recovering capital costs through user charges as service networks expand. With only half of high income country utilities recovering even a part of their capital costs, the prospect of funding the very necessary network expansions in WSS through user charges appears quite remote. As such, PPPs that would fund significant expansions in WSS out of regular revenues, as was hoped during the wave of support for PPP in the mid-90s, seem highly improbable¹⁰. Funding capital expansion of the WSS network must tap other sources of public resources in some form. In China, unlocking the value of public lands for fiscal purposes were used liberally for expanding infrastructure of all kinds, including WSS.(Gao: 2007)and (Peterson:2007), and in Brazil, subsidies from the central government complemented local resources to expand WSS coverage during the decades of very rapid urbanization in Brazil. (Cortines and Bondarovsky: 2007).

⁹ LAC is the most urbanized region in the developing world at 84.3% urbanization, and are second only to North America. They even exceed Europe's urbanization rates. See United Nations (2006)

¹⁰ WSS PPPs often achieved efficiencies that many hoped could be applied to network expansions. Experience has shown that even when efficiencies were achieved, they were rarely applied to network expansion for a variety of reasons. (Annez: 2007) Whether the efficiencies achieved would even have been adequate to fund the service expansion envisaged has not been studied.

Table 3.1. Overview of Cost Recovery in WSS Utilities World Wide

Country Grouping	% of utilities that do not recover basic O&M	% of utilities that recover most of O&M	% of utilities that recover O&M plus partial capital costs
World	39	30	30
High Income	8	42	50
Upper Middle Income	39	22	39
Lower Middle Income	37	41	22
Low Income	89	9	3
OECD	8	43	51
Latin America and Caribbean(LAC)	13	39	48
Middle East and North Africa(MNA)	58	25	17
East Asia and Pacific(EAP)	53	32	16
Europe and Central Asia (ECA)	100	0	0
South Asia (SAR)	100	0	0

Source: Adapted from Komives et alia(2005)p.21 Regions follow World Bank classifications. See original for discussion of the sample of utilities on which these data are based

Table 3.2 examines cost recovery performance for electricity utilities world-wide. The contrast with water utilities is noteworthy. Electrical utilities have achieved a much higher level of cost recovery than have WSS. All high income countries charge tariffs that recover basic O&M, and only 17% of their utilities do not have tariffs high enough to recover any capital costs, as opposed to half in the case of WSS. In upper middle income countries, all utilities recover basic O&M vs. 61% in WSS. This is also true of the other income and regional categories, far more electrical utilities recover all or most of their O&M costs than in WSS. Still, recovery of even a portion of capital costs is quite limited. It is only in the high income countries and LAC that more than half of utilities recover even a portion of capital costs. Accordingly, while to a much lesser degree, the prospects of financing new investments in electricity out of user charges are quite dim in most developing country utilities. While PPPs involving takeover of electricity operations have been much more widespread than for water supply, the overall contribution of

PPPs to investments in capacity expansion may be expected to be relatively limited(see Harris:2003 and Annez: 2007) Expanding electricity capacity in cities cannot rely much on user charges in most developing country utilities.

Table 3.2 Overview of Cost Recovery in Electricity Utilities World Wide

Country Grouping	% of utilities that do not recover full O&M	% of utilities that recover most of O&M	% of utilities that recover O&M plus partial capital costs
World	15	44	41
High Income	0	17	83
Upper Middle Income	0	71	29
Lower Middle Income	27	50	23
Low Income	31	44	25
OECD	0	17	83
Latin America and Caribbean	0	47	53
Europe and Central Asia	31	38	31
East Asia and Pacific	29	65	6
Sub-Saharan Africa	29	71	0
South Asia	33	67	0

Source: Adapted from Komives et alia(2005) p.26 Regions follow World Bank classifications. See original for discussion of the sample of utilities on which these data are based.

There are economic reasons that make it appealing to subsidize capital costs for both WSS and electricity.

While it is tempting to blame such widespread subsidization of WSS and electricity on the political process alone, the technology and economics of these two sectors makes them easy targets for subsidization. Most important among these features is the long lives of infrastructure assets in both sectors. As Table 3.3 shows, the lives of both electricity and WSS are relatively long. Accordingly, the costs of running down the assets are relatively low, and slow to be noticed. It is interesting to note that in electricity supply, the overall quality of service is much more sensitive to maintenance spending than for WSS. Unplanned service interruptions result fairly quickly when maintenance is deferred in electricity

whereas this is not the case for WSS. This feature is quite consistent with the far superior performance in O&M cost recovery for electrical utilities. A second important technical feature of WSS and electricity is that capital costs make up the majority of costs. The high share of capital costs in total means that it is both difficult to trace specific costs to specific consumers, and it means there is a large divergence between short term and long term marginal costs. Also, because capital costs are so substantial, the gap between full O&M recovery and full capital cost recovery is very high, making the shift to full cost recovery a very substantial one. These technical features in both WSS and electricity service delivery make the political economy of achieving full cost recovery tariffs challenging at best, and reinforce the difficulties of funding service expansion on the basis of user charges that include capital cost recovery. Thus, the technological features of WSS and to a lesser extent electricity supply create a sharp divide between the interests of incumbents in established neighborhoods who already benefit from the existing network and the residents of informal settlements or rapidly densifying areas that require network expansion.

Table 3.3 Capital Intensity and Asset Lives for Utility Services	Capital Intensity (% of Total Costs)	Typical Asset Lives (Years)
Electricity		25-30
Generation	35-75	
Transmission	90	
Distribution	70	
Water Supply	65	20-40
Sewerage	80	40-60
Telecommunications	25-45	10-15

Adapted from Komives et alia (2005: 33)

Charging full cost recovery rates for WSS and electricity could raise serious issues of affordability for poor households especially in many low-income countries.

One of the most compelling arguments for recourse to subsidies for WSS and electricity is the legitimate concern that charging full cost recovery tariffs would cause considerable hardship for poor households. While assessing affordability requires a number of assumptions, all of which could be questioned and which may vary from country to country, there is still considerable evidence that even charging full O&M cost recovery rates for utilities would be a hardship for many households in poor countries. Table 3.4

shows the results of one such analysis, using the common rule of thumb is that household spending higher than 5% of household income would represent a hardship, and thus would not be “affordable”. This analysis indicates that *if all households were connected to the utility service* and only O&M costs were fully recovered, a sizeable fraction of households, about one-third in South Asia, would suffer hardship except in LAC. The impact of reducing subsidies to a point that they recover a sizeable share of capital costs is very dramatic with more than 65% of households in India and Sub-Saharan Africa facing affordability problems.

Table 3.4 % of Households Paying More Than 5% of Income on Utilities in Alternative Cost Recovery Scenarios

Country/Region	LAC	East Asia	Sub-Saharan Africa	India
Tariffs covering O&M (US\$6 per month)	<5%	20%	35%	35%
Tariffs covering O&M plus substantial Share of Capital Costs (US\$13 per month)	15%	45%	65%	65%

Source: Derived from Foster and Yepes (2005)¹¹

This evidence gives a clear rationale for the widespread use of WSS and electricity subsidies at least in low-income countries. A significant number of utility customers would suffer if those subsidies were substantially abolished. However, these numbers can be deceptive, since they are based on the hypothetical case that all potential users are connected to the system. A substantial share of the lower income groups may not be connected, and thus do not benefit from any such subsidy. These households would therefore not be affected at all by an increase in user charges, except insofar as better cost recovery might permit utilities to expand services. As such, this analysis overstates the number of households that would actually be affected, and abstracts from the very real divide between low income households that benefit from connections and the subsidies that accompany those connections and those that do not. However, even correcting for this coverage gap still suggests that moving to full cost recovery could have widespread enough impacts that most policymakers would hesitate to move too far or too quickly in that direction.

¹¹ Calculations are based on simulation of the cost of a minimum subsistence consumption bundle of both WSS and electricity services provided at the respective tariffs. Distribution of income data needed to estimate percentage of affected households was derived from household surveys.

The paradox: Subsidies may be needed to cushion the impacts of full cost recovery for some low-income households. But this does not imply that WSS and electricity subsidies have a progressive impact. The consumption subsidies that are the commonest form of WSS and electricity subsidy have a regressive incidence.

While the evidence shown above suggests that some subsidy of utility services, especially WSS may be a political and social necessity, the most commonly used forms of subsidy actually have a regressive impact. These impacts are regressive using two different definitions of incidence. The first definition measures what share of the subsidy is captured by a given income group in relation to their share amongst the population, answering the question “How well does the subsidy instrument target benefits to the poor versus other households? The second, beneficiary incidence, measures how well the subsidy reaches the poor. Do they benefit from the subsidy?

On both of these measures, the weight of evidence indicates that the volumetric consumption subsidies (with a highly subsidized lifeline consumption level and rising rates thereafter) that are very common in utilities throughout the world do badly at targeting the poor on both measures. A number of design factors lead to this result.

- 1) The poor are disproportionately represented among the populations that are poorly served and not connected to utility networks. They get no subsidy at all.
- 2) Even when the poor are connected, they often do not purchase meters, and thus do not benefit from the lifeline tariff rates.
- 3) Fixed charges on utility bills for minimum consumption, or fixed expansion charges, often mean that the effective cost per unit of a small consumption package is not actually lower than a higher consumption bill.
- 4) Subsidies are often sufficiently deep that even very high levels of consumption receive a subsidy, so high consuming households may absorb a high share of the total subsidy bill.
- 5) The relationship between income and higher consumption of water is not reliably and strongly positive, so volumetric tariff increases do not necessarily penalize richer households enough to compensate for other factors mentioned above.

Thus, policymakers wishing to design subsidies that have only a neutral or progressive impact need to consider other means of targeting the poor.

- 1) Subsidies on connections clearly have a more progressive incidence than consumption subsidies. However their impact is limited, because utilities cannot usually dramatically expand their connection rates even if households are prepared to pay.

- 2) However, connection costs are often not the only constraint to connection for the poor. Informality or land titling issues can constrain access to networked utilities for many of the urban poor.
- 3) Even without subsidizing connections, the incidence of expanding access to utilities benefits the poor disproportionately. In all regions other than ECA, not being connected to the utility system is a good proxy for poverty.
- 4) Targeting consumption subsidies only to newly connected consumers tends to have a more progressive impact than generalized subsidies.
- 5) Reducing the overall level of subsidy in user charges reduces the leakage of subsidies to the higher income groups.

Implications for India: Full cost recovery is too ambitious an objective in the medium term. Steady and gradual increases in utility rates make sense not only for financial viability of utilities, especially those in WSS, but also for expanding the reach of WSS subsidies to the poor.

There is considerable evidence, including in India that even the poor would be willing to pay more than the current rates. A study by Choe, Varley, and Biljlani (1996) in Dehra Dun, India, found that 80 percent of consumers would pay more than the current water rate, although the maximum rate was well below cost recovery even for operations and maintenance. 60% of those customers would pay double or more the current rate. Misra and Goldar (2008) show that even if willingness to pay is below full cost recovery, which would not be affordable at 5% of income, there is scope to increase tariffs a great deal to pay for improved service. Indeed coping costs currently paid by consumers for services outside the water system amount to Rs. 5000 million (500 crores) and exceed the \$4000 million (400 crores) paid by users for services from the Delhi Jal board. This evidence strongly indicates that an increase in overall water rates should be possible. With the introduction of the Unique Identification System in India, in the due course of time, it could become possible to direct compensating subsidies to those households for whom water rate increases would constitute a genuine hardship. Chile has devised such means-tested subsidies with considerable success, while expanding its coverage of in house piped water to 100%.

Table 3.5 WSS Tariffs, Cost Recovery, and Access for Selected Countries

GPP per capita World Bank, 2008 World Development Indicators.

Water charges	Brazil	China	France	Philippines	Turkey	UK	Spain	India
Tariff (in \$US/m3, 2001) without sanitation	0.39	0.2	1.23	0.2	0.3-1.0	1.18	0.57	0.01-0.09
% Recover								
* O&M	~100%	not recover	75-100%	Low cost recovery	100%	Not always recover	100%	Low cost recovery
* Capital	not recovered	not recovered	>80%	Low cost recovery	not recovered	high recovery level	not recovered	not recovered
GDP/capita(in \$ PPP converted)	10,296	5,962	34,045	3,510	13,920	35,445	31,955	2,972
% water coverage (Broad Definition)								
* Urban	96%	93%	100%	87%		100%	100%	90%
% sanitation coverage (Broad Definition)								
* Urban	83%	69%		80%			100%	62%
% sanitation coverage (Sewerage)								
* Urban	53%	50%		7%			98%	

Sources: Please see Annex

As Table 3.5 shows, India is an outlier with respect to cost recovery in water. While subsidies are very widespread around the world, India's subsidies are exceptionally deep, even in comparison to democratic countries of similar per capita income like the Philippines. In spite of deep subsidization, India has achieved a respectable degree of access for urban water supply. This most likely reflects availability of grant funds for capital investments and the long life of water assets rather than financial viability of water operations in India. The very low level of reliability and quality of service, where India and the rest of SAR are outliers, attest to this. A few conclusions and recommendations follow:

- 1) Full cost recovery in the WSS sector will not be achieved in the medium term. It is likely to take years to achieve basic recovery of O&M costs. Exhortations to do so may simply distract from the painstaking task at hand, improving service quality sufficiently to gain the credibility amongst rate payers needed to permit gradual tariff hikes. Pilots in three secondary cities in Karnataka for supplying water 24X7 are encouraging, as they have allowed for gradual tariff increases and proven that much higher quality services can be sustained. Much improved operational performance, achieved in these particular cases through a management contract with a private operator, has underpinned this success.
- 2) Fostering an environment where users pay a reasonable share of operating costs means that comparable service improvements must be expanded. Therefore operators of urban WSS services will need a substantial, reliable source of recurrent funding other than user charges. Identifying and securing these should be the top priority for ensuring delivery of this vital urban service, quite apart from obtaining funds for new investments.
- 3) Funding for these operational improvements must come from public resources.
- 4) Placing O&M for water systems on a sounder financial footing will expand the 'carrying capacity' of water systems and thus the scope for delivery of services to the poor. This will reduce the regressivity of water subsidies as they exist today in India, much as they do in many other places around the world.

Urban Transportation¹²

Setting a suitable policy for cost recovery for urban transportation is greatly complicated by the multiplicity of transportation modes operating in a city. Pricing policy not only seeks to recover the costs of building and operating public transport services and the urban road network. It also seeks to avoid congestion, and optimize the cost effectiveness of usage of different modalities of public transportation,

¹² This section draws heavily on an excellent summary of the issues for pricing urban transport, provided in Gwilliam (2002)

which are complementary for users (eg high speed suburban rail lines and intracity buses). Using marginal cost pricing is greatly complicated by the differing degrees of economies of scale across urban transport modes, and hence the divergence between short run marginal and average costs. Beyond efficiency concerns, equity also plays an important role in the practice of urban transport. Policymakers cannot avoid pressure to ensure that a reasonable level of mobility is affordable to lower income and vulnerable groups.

Recovering the costs for use of urban roads is highly problematic: Tools at the municipal level are very limited.

The choice of models for ensuring cost recovery in urban transport is highly constrained by institutional issues, technology, and social acceptability. Road use is the most important case in point. Managing and correctly pricing it has become a very pressing issue in fast growing low and middle income countries with rapidly increasing car ownership. It is not practicable to charge tolls for all uses of a dense urban road network, although this would be the tool of choice for recovering costs of roads in line with their use. However, technological advances are opening up the options for reasonably cost-effective zonal urban congestion pricing. London, Stockholm, and Norway have recently established such charging systems, while Singapore has practiced congestion pricing for over thirty years. It is quite difficult to predict how quickly this method is likely to spread to developing country cities or even a broader range of high income countries, since clearly there are important political and social concerns in addition to technological issues. If congestion pricing takes off, care will need to be exercised in design. The revenues will not necessarily accrue to the local government in charge of managing roads. In the United Kingdom, a change in the law was required to ensure that congestion pricing revenues in London were treated as a user charge not as a tax, and thus automatically credited to national treasury.

The next best method for pricing urban road use is considered to be fuel taxes, because these impose costs that vary with car use. Again, in most countries, fuel taxes can only be levied by the federal government, so this tool is not available to urban local governments to try to increase the costs of road use in their locality. It is relatively rare even for these taxes to be shared with local governments to help them defray the costs of managing their road network. The fiscal tools left in the hands of local government for managing their road network are parking fees and vehicle ownership and registration fees. Vehicle registration fees have been used explicitly to limit car or motorcycle ownership in cities in Denmark, Hong Kong, Japan and China. Singapore has gone so far as to auction a limited number of licenses to own a motor vehicle. This results in increasing motor vehicle costs to 4 to 5 times the world price. These tools may be useful in limiting ownership: Denmark and Hong Kong have only 330 and 60 vehicles per thousand inhabitants. But the revenue impact of these tools is unlikely to make a significant dent in the costs of operating urban road networks.

Reasons to subsidize urban transport are many, but resources to fund such subsidies at the municipal level few.

For public transport, fares are used for cost recovery, but as mentioned above, but fares are often expected to meet a host of other objectives. For example, it has long been argued that public transport should be subsidized to compensate for the subsidies provided to users of private automobiles. Using this logic, it is estimated that public transport should be subsidized to the tune of 100% in London, and 50-80% in Los Angeles and Washington DC. (Estupiñán et alia: 2007) While the allocative efficiency issue may be real, correcting the relative pricing of private vs. public transport in this way has dramatic implications for the financial viability of public transport. Higher levels of government would usually have to be committed to providing such subsidies unless the local tax base is very rich and immobile—rarely the case.

Affordability is also an argument subsidizing public transport. However, the evidence for developing country cities, while not as extensive as that for water and electricity subsidies discussed above, also indicates a similar result. (Estupiñán et alia: 2007) These subsidies tend to have at best a neutral, and more often, a regressive incidence, in large part because the poorest households opt out of the public transportation system. However, because higher income groups make relatively little use of the public transport system in developing countries, they tend to absorb less of any subsidy provided. Likewise, taxation on motor vehicle use appears relatively progressive. Vehicle ownership charges in Singapore appear to be borne by primarily by households in the top 30% of the income distribution.(Gwilliam:2002: 152). Although subsidies on urban transport do not tend to go to the lowest income groups, there is some evidence that withdrawing subsidies could impose hardship on lower income groups using urban transport. For example, in Mumbai, in spite of a 30% subsidy on public transport, it is estimated that the cost of making 60 trips per month would amount to roughly a quarter of the income of the lowest 20% of households in the income distribution. Carruthers, Dick and Saurkar (2005) cited in Estupiñán et alia (2007: 12).

Urban transport is widely subsidized, even in high-income countries.

Subsidies in public transport have been documented to a limited extent, although primarily in high income countries. Table 3.6 summarizes some of the evidence available.

Table 3.6: Cost Recovery in Selected Urban Transport Systems

Country/City	% Cost Recovery
Mumbai bus transport	70%
Mumbai Rail	98%
10 European Transport Systems	25-29%
US Commuter Rail	48%
US Buses	29%
Canada Light Rail	50%
Canada Buses (1960s and 1970s)	70-95%

Sources: Cropper and Bhattacharya (2007) for Mumbai and Estupiñán et alia (2007)

It is interesting to note that Mumbai's rail company seems to achieve the best cost recovery of this entire sample, and the bus system has cost recovery that is better than many of the high-income countries. One reason for the good cost recovery performance is the very high utilization of both networks and resulting crowding in both buses and trains. One could expect these levels may not be sustained as this crowding is alleviated, but this level of subsidization is nothing like the issue of cost recovery for water. Expansion of the metro system is unlikely to improve the cost recovery in urban transport in India. The estimates suggest that subsidies are already quite deep in Delhi's metro, and high-income country metro systems do not fully recover costs even after over a century of operations. (See for example Mohan: 2006). The ubiquitous and long lasting subsidies in urban transport around the world suggest that, barring a revolution in congestion charging for roads or a radical shift from subsidies in kind to cash transfer to poor households, urban transport will represent a net drain on municipal budgets that must be covered from either local benefit tax revenues or transfers from higher levels of government.

Section 4: Key Features of the Environment for Urban Infrastructure Finance and Potential for Development

Earlier sections have discussed different models for structuring urban finances and cost recovery internationally in comparison with India. In this section, we examine in more detail a number of the operating features of Table 1.1b in the Indian context, as a means for considering the changes that are on the critical path for improving the flow of finances for infrastructure in cities.

India's repressed real estate markets narrow the horizon for local urban finance.

Local finances in India's cities draw upon a relatively narrow base among the variety of potential sources of revenues shown above, with heavy emphasis on the property tax. It is quite typical for broad based local benefit taxation to rely upon real estate market values as its tax base, for a number of good reasons.

(For details, see for example: Linn and Bahl: 1992 or more recently, Broadway and Shah (2009).) In India, as in many developing countries, real estate markets are regulated and taxed in ways that erode the real estate base, usually for reasons quite unrelated to local taxation. An unintended consequence of these policies is constriction of this valuable resource for financing local services. These regulations break into the following broad categories¹³:

- 1) Policies that distort official prices. Examples include high transactions taxes, such as stamp duties, that provide a powerful incentive to under declare traded values, and rent controls, which limit official rents. These policies erode the taxation base by lowering official, declared prices of rental housing and properties. They also make market revaluation difficult, because they tend to limit the frequency of formal transactions, sales of property, formal rental contracts, and thus make it very difficult for official valuations to follow market trends.
- 2) Policies that drive properties out of the local tax base. Restrictions on density, Floor Area Ratios, large setbacks, high standards for roads and communal spaces in residential areas mean that formal housing must consume land and building materials in quantities that may not be affordable to a large share of the population. Lower income groups must resort to living in oftentimes well-located, but illegal housing in precarious circumstances. These households usually fall out of the property tax and standard user charges base. While households living in informal housing pay for services, and for some form of security to compensate for standard property rights, these payments are usually lost to the formal fiscal system. This, in turn, compromises the ability of local governments to operate, expand and improve infrastructure for increasingly large and dense cities.
- 3) Widespread public land ownership and practices that otherwise exempt properties from the formal tax base can significantly erode the urban tax base. They do so not only in static terms, but also dynamically. Widespread public holdings of key land parcels in cities often impede dynamic urban redevelopment, and thus drive large scale activities outside the central city and the city property tax net.
- 4) Policies that impede redevelopment and re-use of land within cities, like the Urban Land Ceilings Act, FARs and zoning regulations drive economic activities that are highly location specific into the informal sector, and footloose activities further from the city center. These activities may end up outside the formal urban jurisdiction responsible for providing services. This dispersion not only reduces the revenue base in the core city, but increases the costs of providing infrastructure services, thus diluting the considerable potential for agglomeration economies that are inherent to the dense environment in cities.

¹³ Bertaud (2010) provides a comprehensive discussion of developing country regulations effectively keep formal housing beyond the reach of low income groups, and thus prevent their integration in the local tax base.

India's urban real estate sector is one of the most repressed among fast-growing developing countries. While the rest of the economy has opened up to market forces, many of the constraints in the real estate sector continue unchanged. While the JNNURM and earlier URIF reform packages mandated key changes that should open up the sector considerably, there is concern in some quarters that these reforms have taken place *de jure*, and *de facto*, less has been achieved on the ground. This state of affairs bodes poorly for the health of Indian urban finance, because India's cities are very dependent on real estate taxation and local user charges. While other levels of government have benefitted from much improved collection of income and sales taxes in a high growth environment, urban local bodies risk suffering from a fiscal reform mismatch—one where their revenues are tied to that part of the economy not yet unleashed by reform while user demands are rapidly increasing. While local property taxes are unlikely to meet all of India's urban finance needs, expanding their base and yields is an essential step in the process.

India's financial sector is as yet an untapped resource for financing its cities.

Among developing countries, India's financial sector is exceptionally deep and diversified. In the recent global financial crisis starting in September of 2008, it also showed itself to be stable and resilient, qualities that have taken on renewed value in the face of these events. (Commission on Growth and Development: 2009). Both the banking sector and local bond markets have expanded their reach for infrastructure and sub-national finance in the last 10-12 years, as liquidity requirements began to include sub-national government debts. However, urban local governments are not currently yet attractive clients in this expanding market. Only about two municipal bonds per year have been issued in the last twelve years, and local government borrowing from banks has been limited to primarily to specialized intermediaries channeling special schemes that draw on government funds rather than the private savings that India's financial sector has shown itself more than capable of intermediating for other purposes.

A number of constraints are seen to be limiting this financial access. Weak revenue flows in cities limit borrowing head room to a great extent. Preparing a municipal bond has usually required a great deal of structuring to provide the necessary security for just one issue, and follow on issues have been rare. For similar reasons, it is understandable that commercial banks have not yet sought to complement the limited business undertaken by specialized municipal banks. Local government and contractor capacity is emerging as possibly a short term constraint, now that JNNURM has infused substantial funding into selected cities. This capacity should develop as programs like JNNURM run their course. If the reforms and investments supported under JNNURM can support increases in recurrent revenue surpluses, financial institutions are likely to see benefits in developing with relationships and products that will at least meet the needs of larger cities. At this point, India's sophisticated financial sector can take on a considerable share of the burden of providing capital finance in cities, once the cities have the financial base and necessary autonomy to participate.

Relations between cities and states complicate and constrain finances in India's cities.

India's cities occupy an uncomfortable middle ground in India's vibrant and rapidly growing democracy. As the economy has taken off, the performance of cities has taken growing prominence as a measure of government effectiveness. The states have retained the traditional 19th century British model of strong control of local bodies, but they have not provided the generous intergovernmental subsidies this entailed. The 74th Constitutional Amendment Act may have complicated matters by creating an elected government at the local level before there was much support from the states for real devolution. Local governments do not have the administrative autonomy or the scope of control to overcome the constraints to increasing the pitifully low yields of the revenue instruments at their disposal. They cannot independently revalue the property tax base. They do not make the policies that repress real estate values. Their territorial jurisdiction is too narrow to finance or execute major investments in transportation connectivity or major extensions or improvements in the water supply and sanitation system. Urban local bodies are in a position to make piecemeal improvements, and many of them have done so. Without the strong and sustained backing of the state, transforming local services, eliminating backlogs, improving the quality and reliability, and extending the reach of network services like water and sanitation and electricity is impossible. But this is precisely what will be needed to make user charges cover a more reasonable portion of costs and to sustain political support for a steady increase in property tax yields. While the political process in India rightfully enjoys strong popular support and credibility, the performance of government does not. There is a great political dividend to be earned from improving public services in cities, and ambiguity about who might earn it is impeding progress. The states are in a position to show leadership and make this political pact, and should be given strong incentives to do so.

Public land is an under-utilized fiscal resource in India's cities.

Among the many pressure points in center, state, and local government relations is the weakness in the overall fiscal base. Many important strides have been made in building a fiscal responsibility framework, improving the yield of income and corporate taxes, and modernizing the revenue base of state and central governments to compensate for the restructuring of high yielding but distortionary taxes. Reforming the expenditure side of the budget is recognized as an important priority for creating fiscal space, but this will be painstaking and slow process. India cannot afford to pass up opportunities to expand revenue raising potential at any level of government. Urban land represents a very rich potential source of revenues that is too substantial to be leave underdeveloped. It has been used historically in the early stages of infrastructure development in the US (Wallis: 2000), and has recently become more prominent in developing countries. Experience in Egypt shows, these values can be very substantial even in terms of the national government budget. Istanbul's auction of an abandoned bus depot and brewery

illustrates that sale of a few well chosen and located parcels can generate more than a year’s worth of capital spending, and dwarf the value of municipal bond issues.

Table 4.1: Selected Recent Transactions Using Land Assets Selected Developing Countries

Location/Activity	Land Financing Amount/ Use of Proceeds	Comparative Magnitude
Cairo, Egypt: Auction of desert land for NewTowns (May 2007, 2100 hectares).	US\$3.12 billion: to be used to reimburse costs of internal infrastructure and build connecting highway to Cairo Ring Road	117 times total urban property tax collections in country; equal to 10% of national government revenue
Cairo, Egypt: Private installation of “public” infrastructure in return for developable land (2005-present).	US\$1.45 billion of private infrastructure investment, plus 7% of serviced land turned over to government for moderate-income housing.	Will provide range of urban infrastructure services for more than 3,300 hectares of newly developed land, without financial cost to government.
Mumbai, India: Auction of financial center land (Jan. 2006, Nov. 2007, total 13 hectares) by Mumbai Metropolitan Regional Development Authority (MMRDA).	US\$1.2 billion: to be used primarily to finance projects in Metropolitan Transportation Plan.	10 times MMRDA’s total capital spending in fiscal 2005; 3.5 times total value of municipal bonds issued by all urban local bodies and local utilities in India in past decade.
Istanbul, Turkey: Sale of old municipal bus station and former brewery. (March & April, 2007)	US \$1.5 billion, auction proceeds, to be dedicated to capital investment budgets.	Total municipal capital spending in FY2005 was US\$994 million. Municipal borrowing for infrastructure investment in 2005 was US\$97 million.
Cape Town, South Africa: Sale of Victoria & Albert Waterfront property by Transnet. (Nov. 2006)	US\$1.0 billion, to be used to re-capitalize Transnet and support its investment in core transportation infrastructure.	Sale proceeds exceeded Transnet’s total capital spending in FY 2006; equal to 17% of 5-year capital investment plan prepared in 2006.
Bogota, Colombia: <i>Contribucion de Valorizacion</i> , betterment fees,	US \$1.0 billion collected 1997-2007; US \$1.1 billion planned for 2008-2015. Used to finance city street and bridge improvement program.	Finances 50% of street and bridge improvements. Other sources of financing: US\$50 million IFC loan; US\$300 million international, peso-linked bond issue.

Source: Reproduced from Peterson (2009:3)

Peterson (2009) documents a range of different types of land-based transactions in a variety of developing countries that have reaped very rich fiscal rewards. (See Table 4.1.) These range from outright sales or leases to developers’ exactions, betterment levies, and land pooling. These tools are particularly useful in

two specific instances. The first is when governments have many valuable real estate assets on their balance sheet, but deficient infrastructure. This lack of infrastructure limits income flows from sources like property taxes and user charges. Willingness to pay such charges is very limited when service quality is low, access to networked services is rationed, and government credibility for managing and executing major infrastructure improvements is weak. Trading valuable but underutilized land assets forms a corpus of finance to support a major capital improvement program. Such a program can in turn jumpstart a shift toward more robust income flows to sustain critical urban services in the future. The second opportunity arises when infrastructure is sufficiently constrained that well-designed infrastructure improvements raise the value of the land more than the cost of investment. Properly designed fiscal tools can be used to recoup some of these gains to finance the investment. Many Indian cities meet these conditions, especially the large economic centers, and these tools have been used there. But much more could be achieved. Dramatic and sustainable progress is possible if some of the key public policy issues surrounding the use of land-based financing could be addressed.

1) Institutional Fragmentation of Land Ownership and Responsibility in Cities

Public land holdings in Indian cities are spread over a multiplicity of different owners who varying degrees of responsibility for building the infrastructure that will make cities work better. Many federal agencies own well located lands of very high value in city centers. They have no responsibility or mandate to improve the city wide infrastructure, and any disposition of their lands would have to offer them a net gain. Other agencies such as the development authorities have the sole power of eminent domain and can thus aggregate and auction high value land packages, but their primary mandate is providing low cost housing not improving city wide infrastructure. Because of fragmentation of land holdings and regulatory responsibilities, there are considerable gains to cooperation across institution. In most cases, any single land holder could enhance the value of developing his holding by cooperating with neighboring land holders or obtaining regulatory approvals against contributions to infrastructure investments. India's experience thus far indicates that there will be many cases where the value generation will be more than ample to reward all parties to the transaction. The key is to find a framework for collaboration based upon transparent and monitorable public policy objectives.

2) Regulatory Capture of Density Regulation

One very useful instrument of land-based finance is the sale of development rights. The logic of such transactions is that certain types of infrastructure, particularly transportation investments, substantially increase the economic value of land in specific locations in the city. Private parties can and usually are

willing to pay for approvals to expand density. These payments can be used to finance an overall package of infrastructure improvements that support not only connectivity but higher densities. Current conditions, however, complicate a transition to this scenario. Oftentimes regulations maintain densities in Indian cities so low that private parties are willing to pay large sums for exceptions to regulations that unduly ration well-located built space, whether or not infrastructure improvements are offered. There is a widespread perception that these sales involve a considerable leakage from the public purse into corruption and personal gain for insiders. Here, the key is to mobilize support for a shift to a system where density is planned and expanded with improved infrastructure to support it, based on market trends. In such a system, rather than selling off exceptions to density rules piecemeal, a density plan to meet demands for land in specific locations and support long term city development can be elaborated transparently. Development rights can be sold in specific locations to mobilize the public finance--thus seeking to maximize economic gains through systemic infrastructure improvements. A variant of this model was used to finance the Hong Kong metro without any state subsidies.

3) Socially Acceptable Sharing of Benefits of Land Value Capture: Whose Land Is It Anyway?

Transactions that unlock the value of public lands inevitably run up against the question of compensating those displaced by urban redevelopment. Similar problems have already arisen when eminent domain is used to support PPPs, or even when private parties purchase lands for publicly supported projects like SEZs. Value gains are usually substantial because urban infrastructure has been severely rationed, and the local economy is thriving. These dramatic benefits inevitably attract the attention of public at large, and are perceived as unfair. Moving to a system where a portion of these gains are captured for public purposes is a first step. But that is not sufficient. In India's open political system, the public value that is captured must be equitably and efficiently allocated to sustain public support for such programs. Infrastructure investment in cities has an important claim on these resources. However, there are other claimants as well: persons displaced by development, the costs of mediating environmental impacts, the public sector owners of the land, the general public budget. Competition over these benefits can lead to gridlock. Ignoring key claimants can quickly erode public support, as has happened with the SEZ program. Other countries have worked out tools for articulating these competing interests and channeling proceeds to the desired purposes. These may take the form of ring fencing laws or dedicated infrastructure development funds. Consideration of how to apply such techniques in India's cities could have very high returns. Land values in cities are too important a potential source of finance to be deterred by the current level of controversy. Moreover, allowing gridlock to prevent concluding transactions that unlock

urban land values for public purposes does not solve the root of the problem. Infrastructure deficits and the unrealistic density regulations that accommodate them are the source of rents—not the land value transactions. These values will be captured by narrow interests as long as those rents exist. Opening up a public policy consideration of the proper disposition and level of these rents may be an idea whose time has come.

4) Gradual Measures for Unlocking Land Values Are Possible

These structural reforms constitute an ambitious agenda for change, but land value capture can offer considerable benefits before all these issues have been fully addressed. Gujarat has already streamlined the execution of its land pooling program to make it move quickly and thus make it attractive to government and landowners. (Patel: 2009) Allowing flexibility for land value capture makes it easier to introduce more substantial infrastructure improvements. This change was made possible by the dedication of a political leader, Surendra Patel, who reached out to the public to gain public support for the new approach. Momentum was built by starting with a relatively uncomplicated case. The pragmatic gradualism that has been an ingredient in successful national reforms to open and deregulate the economy also has its place in developing these instruments of public finance in India.

Financing India's complex and growing urban system involves developing instruments attuned to the needs of secondary cities.

As India's urbanization process matures, secondary cities and towns will grow faster than India's metro cities. Over half of the growth of India's urban population is projected to take place in cities under 1 million over the next twenty years. This means that over 100 million in population will be added to secondary cities and towns across India. In the right circumstances, large cities can rely on an appropriate combination of municipal bonds, bank borrowing, and land-based finance to fund new infrastructure. Smaller cities will have more difficulty accessing these instruments, yet their investment needs will nonetheless be very substantial. A finance and investment support delivery system that can meet the needs of secondary cities will be an increasingly critical feature of India's urban finance architecture.

What are the special needs of secondary cities? Typically financial and technical capacity in smaller cities are both weak. Smaller local governments have to take on incremental investment programs over time, setting priorities across a range of different investments. Capital subsidies are needed for a variety of

investments with important externalities, such as sanitation, waste water treatment, and slum upgrading. While they invest in better services, small cities need also to build the capacity to maintain and operate the assets created. Building capacity for operations and maintenance has been an important failing of many projects that provide large subsidies for basic services. South Africa's and Uganda's experience are a case in point. See also Annez et alia (2008) for other examples.

Smaller cities need more than a financial package for investments and specialized agencies to work with them have an important role.

Just as small enterprises require a package of advisory and financial services, so too do smaller cities. They need help with ancillary activities, such as preparing capital investment plans, developing financial, procurement and technical packages for investment projects, and obtaining environmental and other regulatory approvals. The historical model for providing this package of services was specialized municipal banks supported by the state. In Europe, these banks were offered privileged access to long term savings sources, and were often offered a monopoly for providing banking services to local governments. In the United States, the municipal bond market is subsidized by government through its tax free status, and many states established bond banks to pool bond issues and pass this benefit on to small borrowers. Peterson (2003) and Davey (1983). The principle, however, was the same. Smaller municipalities cannot achieve the scale to tap either capital markets or commercial bank lending effectively, so a specialized agency to intermediate and provide a bundle of technical services is created to do so. This model was usually the primary, but rarely the unique source of support for capital funding for local governments. Direct capital subsidies are provided for a variety of reasons to local governments, and remain common even in higher income countries like the US and the European Union (Dexia: 2008).

Experience with using this model in developing countries has been variable, although there are important successes. Annez et alia (2008) discuss the difficulties with using a credit model in a number of projects supported by the World Bank in Africa. Some of those lessons may well be relevant for a sub-group of India's secondary cities. The most important constraint was limited appetite or capacity for borrowing. In several World Bank projects in Africa and Latin America, an alternative model that offered conditional grants for capital investments proved more successful. It appears that one of the most important services provided by these specialized intermediaries, whether they provide loans or grants is the outreach to smaller cities and the ancillary assistance with program design and execution that compensates for the lack of local capacity. A recent World Bank evaluation (Gilbert:2009) found that projects that used such intermediary agencies that worked with a number of local governments were more successful in achieving their capacity building objectives than those that pre-selected a handful of cities for participation *ex-ante*,

although the study did not examine why. A possible explanation has been advanced by Zinnes (2009). His thesis is that a ‘tournament’ approach that uses competitive access to government or donor support can improve the results achieved in programs supported from higher levels of government. If the competitive process is designed and managed well, this approach ensures that participants that are more committed to the program activity opt in to such programs, and thus mobilize the local capacity and engagement necessary to success.

The design of subsidy delivery to secondary cities needs more attention.

Donor interest in government municipal funds declined considerably in the 1990s as private sector finance solutions were seen to be the answer. However, interest in how to devise ‘incentive compatible’ programs for working with secondary cities and towns is now growing as countries seek to address the challenge of meeting the infrastructure requirements of large numbers of far flung local governments. Many of the key questions about how the design of subsidy and credit delivery mechanisms affects the performance of these programs have yet to be answered. What are the merits of block vs. tied grants? What makes for an effective performance grant system? Does providing funds on loan terms vs. grants improve fiscal discipline?

India’s experience in this area is rich, and could offer considerable insights. In a number of Indian states, municipal funds of various forms and structure have been used continuously since the late 1970s. They include funds established for Calcutta, Gujarat, Karnataka, and Tamil Nadu. There is also considerable experience in Andhra Pradesh with a slum upgrade subsidy program, designed to reach a wide range of cities. There is much to be learned in comparing the results of these programs, and understanding how their reach could be expanded. JNNURM has dramatically changed the landscape of financing available for urban infrastructure investments. But it has thus far been designed to provide finance for a large investment program in a limited number of pre-selected cities. Several large cities have accessed bond markets, others are borrowing from a variety of development banks. Developing mechanisms for meeting the limited needs of smaller cities, and ensuring that subsidies for basic services can reach municipalities in need, regardless of size or location would be a much needed and welcome addition to India’s eco-system of urban infrastructure finance.

Section 5: Concluding Remarks and Perspectives for India

This overview of key structural features of urban finance systems internationally, including cost recovery mechanisms as well as capital finance, offers some perspectives for India.

- 1) India's system of urban finance starts with some important advantages.
 - a. India has a strong financial sector that can someday offer a precious resource for meeting the capital financing needs of its cities, once they have the resource base to access these markets.
 - b. India's urban economy is flourishing. Ability to pay for urban services will increase rapidly, so fiscal and related reforms have great potential.
 - c. India has considerable experience on which to build in designing a system of capital finance and subsidies for the secondary cities and towns that will be experiencing the most rapid growth over the next thirty years.
- 2) Currently, India's cities work from an exceptionally meager resource base, availing of a very small portion of total government resources. This resource base is inconsistent with the economic potential of cities and high returns to improving urban services.
- 3) Compared to other countries, India's cities receive much less grant assistance and shared taxes than in most other countries, especially those that use property taxation as the main own revenue base of local government.
- 4) India's urban own source revenue base is also particularly meager because the real estate sector on which the property tax relies is exceptionally repressed. Priorities for enhancing local resource mobilization are:
 - a. Impacts of recent real estate reforms must be studied carefully to determine whether they are achieving the desired impacts on the tax revenue base
 - b. User charges and cost recovery for key services like water are amongst the lowest in the world. They should be raised steadily and gradually and the subsidy system restructured to reduce gaping operating deficits in WSS. Still user charges are very unlikely to revolutionize urban finances in the near future.
 - c. More work is needed on solid waste and urban transport to understand better their cost recovery performance and their financial potential. However, services in both these areas need considerable expansion, and rarely break even. These sectors are not likely to offer much near term financial relief for cities.
- 5) While subsidies for urban services cannot disappear overnight, government should eschew deep subsidies for housing. Programs offering free homes to all slum dwellers, for example, could cost as much as 20% of GDP. These promises not only cannot be met, but they also make it politically difficult to offer more affordable and manageable schemes providing basic infrastructure services need for the estimated 93 million people expected to be living in slums by 2011.

- 6) Provided important social and governance issues can be resolved, public lands and land use rights can be a rich source of capital finance for at least the medium term in India's cities. The current system of monetizing land use rights whose values are driven by policy-induced shortages needs to be changed.
- 7) The financing issue in India's cities cannot be entirely separated from management questions. The current responsibilities of the typical municipal corporation or ULB, both functionally and territorially, are too limited and fragmented to permit coherent city management. Until responsibility is concentrated in a more empowered, and thus accountable entity, it will not be possible to put city finances on a sounder footing or improve services. Whether that entity is part of state government or local government is a political not a technocratic question. Nonetheless, developments over the last ten years have clearly demonstrated that India's cities are an economic powerhouse that cannot be managed and financed with the mosaic of services providers and agencies that are now all responsible for a limited piece of the picture.

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