



Value Capture From Infrastructure Investments for Smart Cities

5/17/2016

OBJECTIVE

Indian cities continue to need heavy amounts of capital for financing urban infrastructure, an estimate by McKinsey Global Institute pegs it at \$1.2 trillion over the next 20 years. These needs assume a much greater significance given the scarcity of public finances despite the potential impact of these investments in improving the quality of life for the citizens, an objective of the National Smart City Mission. The potential of integrating ICT technologies in urban resource management will undoubtedly achieve positive externalities in pricing the valuable urban assets (roads, water, energy) thereby generating revenue sources for the ULBs for the operational expenses of these assets. Yet, the upfront capital investments needed to build smart cities requires the city administrators to focus on alternative revenue sources that are financially feasible.

This paper attempts to capture some of the best practices that cities globally have attempted for Value Capture Finance (VCF), a principle that communities benefiting from public investments on infrastructure should pay for it. The paper is restricted to exploring value capture of increases in private land valuation from public investments and public policy actions, especially under the Smart Cities.

The suggested methods in this paper are not exhaustive. The Smart Cities Council

Financing Guide for Smart Cities lists between 25 to 30 tools available for urban infrastructure financing, the Lincoln Institute lists about 8 to 10 broad tools for the same. The World Bank 2009 report on Unlocking Land Values to Finance Urban Infrastructure also lists multiple ways of capturing land values gains for public investment. The message through each of these reports and in this paper is unambiguous, Indian Smart Cities need to proactively pursue and implement a basket of each of these tools based on their local context to capture the monetary benefits of their intended Smart City investments. The cities will do better not to focus on one specific VCF tool but use multiple options concurrently in the area based approach and then scale the successful options to pan city. The Smart City mission is an opportune moment for the Indian Smart Cities to attempt these financing mechanisms and achieve financial sustainability for their proposed developments.

PROBLEM STATEMENT

Urban infrastructure is traditionally financed through higher government grants/transfers, augmentation of local self revenues above operating expenses and long term borrowing. The public private partnership model contrary to popular belief has also been practiced for a long time, especially in New York city in building its City Hall, its ferry terminals and even as recently as Battery Park city.

The 20 lighthouse cities under the National Smart City mission too have identified six broad categories for their financing needs: mission grants, convergence with other missions, own source revenues, public private partnerships, borrowing and others (corporate social responsibility). While the plans have varying budgets and ambitions, there are couple of broad conclusions reached through preliminary analysis of their SCPs.

1. As a group, the 20 lighthouse cities will leverage the seed funding given by the mission (Rs 1000 Crore each approximately) to raise 2.2 times of additional funding through the five other sources. Yet 50% of the group (10 cities) have a leveraging factor of less than 0.5 i.e. they will raise less than 50% of the national mission grants through additional sources.
2. The average revenue demand for the 20 lighthouse cities calculated by dividing the funding requirement (SCP funding

requirement minus the mission grants and convergence) by the municipal revenue income of the cities is 3.2. This means the cities will have to raise about three times their last municipal revenue income to adjust for additional capital required for their smart city proposals. Again within the group this factor varies from 0 to 19.

Thus it is evident that

- First, cities are limiting the financial possibility of fully monetizing the benefits of their smart city investments thereby relying entirely on the mission grants and convergence and;
- Second, the demand for raising additional capital through monetizing their land and other assets and infrastructure spending is high.

This urban infrastructure conundrum can be addressed to a great extent through Value Capture Finance (VCF) frameworks discussed herewith. The same McKinsey report estimates that nearly 45% of the resource requirement can be met through various land and asset monetization strategies

WHAT IS VALUE CAPTURE?

Value capture refers to the recovery of a share of the increment in land valuation due to the positive externalities from actions other than the land owner's investments. The appreciation in land valuation occurs due to regulatory changes, investments in public goods infrastructure that increases quality of housing, jobs access, transportation or social benefits and emergence of an important commercial, cultural, institutional, or residential developments in the neighborhood.

All these changes are associated with increases, most often large spikes, in land values of the affected properties for no effort of the land owner. The land owners in the proximity of these changes become indirect yet rent seeking beneficiaries of an "unearned increment". The potential for windfall gains encourages speculative investments in lands in urban areas and its surroundings. For example investment in a transit corridor distorts land valuations in areas adjoining to the corridor and consequently make housing unaffordable to those who would benefit from the transit usage.

Such passive value accretion makes real estate one of the hottest investment assets. A large share of such land transactions are purely speculative in nature, done in anticipation of new investments in the neighborhood. Naturally these transactions

are of temporary nature to capture the increase in valuations and then exit the market. This creates large resource mis-allocation problems, crowding scarce investment resources out of productive sectors and into speculative activities. Its unfairness and inefficiency apart, this turn of events creates another sub-optimal outcome.

Since governments recover limited value from its investments, their capacity to make similar investments elsewhere is constrained. Private developers will be loath to make large investments when a major share of its returns is captured by others. Economists tell us that this is true of all positive externalities. When faced with such situations, there will be an under-supply of the activities that create the positive externalities. Governments and developers under-invest in such developments, leaving every one worse off.

This problem assumes even greater significance given the vast potential for such investments in India and the even greater demand for them. Unfortunately financial constraints bind and severely limit such investments. Many governments across the world have sought to address this problem by attempting to capture some share of the value increment using various innovative policies. For fiscally strained local and state governments in India, VCF may be the best opportunity to finance their massive investment needs.

VALUE CAPTURE STRATEGIES

The most common strategy to capture value created by investment externalities is through different forms of taxation. They include development charges, impact fees, or higher building fees. Other forms include setting apart a share of the developable land for specific uses or transferred to the local government and sale of Floor Area Ratio (F.A.R) or air rights. A brief description of an illustrative list of such VCF methods is outlined below.

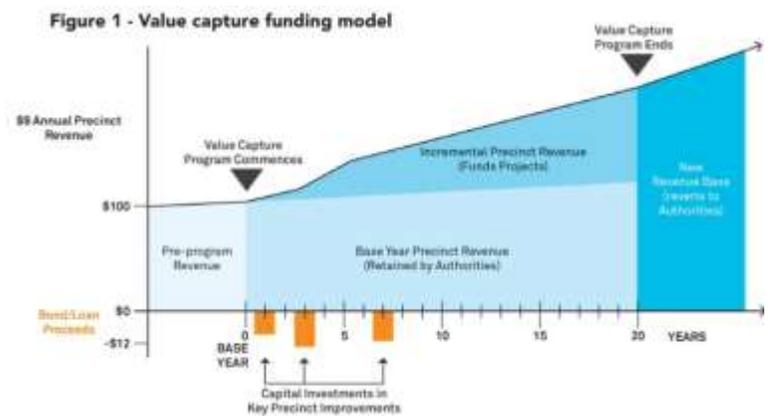
a. Land development and land auction (leasehold to freehold)

The most direct value capture is for governments to build land banks through strategic acquisitions. Once a part is developed, the value of the remaining land rises and the government can capture the entire increment by selling it. However, given the political economy surrounding land transactions, this government-as-realtor strategy is likely to encourage undesirable practices.

But this strategy can be a very valuable source of financing public investments in greenfield developments where government owns large tracts of land. The government agency could monetize its land bank in a phased manner to finance the development of newer areas. The MMRDA and CIDCO have used this strategy to finance the infrastructure development as their areas expanded. MMRDA

especially is using the proceeds from these sales for the Mumbai Urban Transport Project (MUTP). MMRDA was able to generate Rs 50.8 billion (approximately US\$1.2 billion) from the sale of small land parcels in Bandra-Kurla in just two auctions.

Typically, when faced with resource squeeze, governments have preferred to raise money by direct sale of undeveloped land. The periodic land auctions of Urban Development Authorities involving vast extents of vacant lands is the most common example. But as the graphic below shows, value realization increases with asset development¹.



The sale of undeveloped land limits value capture and is therefore an extremely inefficient form of resource mobilization. Rather investing in developing the land assets and then selling them to private stakeholders importantly through auctions

¹ <http://www.consultaustralia.com.au/docs/default-source/cities-urban-development/value-capture-roadmap/value-capture-roadmap-as-web.pdf?sfvrsn=2>

will help to realize revenue for the urban local bodies.

Relevance to Smart Cities

Bhopal due to its proposal of developing government owned land can look at land development and land auction for value capture. The proposed site of Shivaji Nagar (350 acres) after amalgamation, infrastructure development and rehabilitation through land (CIDCO model) could end up with conservatively 20-30% of developed land (70 to 100 acres) that could be used either for revenue mobilization through auction.

Battery Park city was developed on this principle and the proceeds were used to build affordable housing units in Bronx. Other variations include developer dedication requirements such as requiring the developers to follow urban design guidelines, construction standards and even include affordable housing units within broader development on the developed land.

b. Tax Increment Financing (TIF)

Tax Increment Financing or TIF is one of the most popular value capture mechanism in many developed countries, especially the United States. In TIF, the incremental revenues from future increases in property tax or a surcharge on the existing property tax rate is ring-fenced for a defined period of time to finance some new investment in the area. The increment would generally come from a higher taxation rates or, less

often, from the natural increases in the absolute value of tax revenues.

TIFs are especially useful to finance new investments in existing habitations. One example is the Smart City project. Here since the seed funding comes from the government, apart from being a financing tool, the escrowed tax-increment can be used to finance its expansion to other areas in the city. In other words, the public investment made under the Smart City program would be the seed capital to catalyze smart city interventions across the city. The geographical focus would also enhance accountability by linking expenditure with outcomes relevant to the local residents.

New York City uses a form of TIF, called Business Improvement District (BID), to deliver infrastructure and other services in designated areas through Public Private Partnerships (PPPs) by the levy of a special additional tax on commercial property owners. By 2012, there were 67 BIDs spread across the city's five boroughs investing \$100 million annually.

Provided that the necessary investments are made and predicted levels of services achieved, the additional tax is about 5% of the rate-able value in the UK and for a maximum period of 5 years. The biggest BID in the United States, the Times Square Alliance reported \$11 million in assessment revenue and \$18 million in total revenues in 2014.

Relevance to Smart Cities

Retrofitting proposals for CBDs, economic hubs, tourist and innovation centers would qualify for BID (Business Improvement District), Urban Improvement District (UID) or SUD (Smart Urban District) where commercial property owners and businesses pay the levy for improved infrastructure. Pune, Jaipur, Jabalpur, Solapur, Davanagere, Indore, NDMC, Kakinada, Belagavi, Chennai could leverage TIF.

c. F.A.R Sale

The F.A.R across Indian cities is very low, close to one in the vast majority of areas. Given the acute scarcity of vacant land and the adverse impact of the sprawl, it is desirable to encourage vertical development and densification in certain areas. This can be done by incorporating higher F.A.R for these areas in the Master Plan. A two-tier F.A.R structure, with a certain basic F.A.R bundled with property right and the remaining to be purchased, can be designed to enable value capture. The efficient mechanism for F.A.R sale is to define variable neighborhood F.A.R limits depending on the existing and new infrastructure and then auctioning the F.A.Rs in the market. This is in contrast to current Indian scenario where uniform F.A.R is applied throughout the city.

In this context, Indian cities can also consider emulating the French land-use policy which restricts the landowner's

property right to a low baseline F.A.R and considers building rights beyond that as a public resource. Accordingly, additional construction, up to the limit laid out in the Master Plan for that area, can be purchased for a building right fee or by meeting an affordable housing mandate.

Many Brazilian cities have used the sale of building rights to not only raise resources but also guide densified urban growth along transit corridors. In 1995, the Brazilian city of Sao Paulo introduced an innovative instrument, Certificates of Additional Potential Construction Bonds (CEPACs), to facilitate price discovery for the additional building rights². It sold a limited quantity of building rights for a large enough area – one CEPAC for each square meter of additional building right - through an electronic auction. The national securities market regulator regulates the issuance of CEPACs. Those proposing to build over the basic F.A.R would have to purchase CEPACs from the secondary market. The city holds periodic auctions for each area, gradually releasing additional F.A.R so as to maximize the value capture. This can be a potentially useful strategy for transparent value capture, especially in new developments.

² <http://www.slideshare.net/lincolinst/value-capture-a-land-based-tool-to-finance-urban-development>

Relevance to Smart Cities

TOD based proposals such as Bhubaneswar, Ahmedabad, Kochi can utilize FSI intensification, subject to auctions and variable neighborhood FSI caps. A single node developed with TOD principles and higher FSI (assume 4) would produce around 5-10 million sq.ft of residential, commercial and retail space and around \$200 million (2016 prices) of direct economic impact. Additional gains will be accrued due to increase in property rates and improvements in wages due to access to labor markets post the transit investments, at least in the immediate vicinity of the transit corridor.

d. Impact Fee

Impact fees are levied, apart from the development charges, on new constructions in an area where a large new public investment has been announced. Such investments could include major roads and highways, metro rail, industrial corridors, ports, airports, and any other public infrastructure facility. They are levied to recover at least a share of the investment made. The impact fee generally vary depending on the location, the land usage, and height. It is collected when the landowner applies for new construction permission.

Impact fees are calculated based on the total cost of the project investment proposed and the development potential within the influence area. To this extent,

they are unique for each project area and would require a project-wise notification. They differ from development fee in so far as they are generally used to finance specific large new infrastructure projects, and not basic civic utility services.

An example of impact fee is the levy on new developments within the 1 km wide Growth Corridor (GC) on both sides of the 162 km Outer Ring Road (ORR) around Hyderabad. The impact fees were higher for the part of the corridor within the ORR and for commercial uses, and increases with building height. Impact fees have become an important component of municipal infrastructure finance in growth areas of the United States³.

Relevance to Smart Cities

Environmental and heritage based proposals such as Kochi, Jaipur, Surat, Vishakhapatnam, Guwahati, Coimbatore and Udaipur can utilize impact fees, primarily to internalize the impact of development on existing environmental and cultural fabric and to continue maintaining the quality of these assets to match the increased development. Generally impact fees are capped at the maximum cost to provide the infrastructure. Hence for the cities mentioned above, the total estimate of impact fees would in the range of Rs

³ 2009, Unlocking Land Values to Finance Urban Infrastructure, Land and Policy Options, World Bank

10,000 Crores or \$1.6 billion (2016 prices) which is the sum of the area based investment budgets.

e. Land Pooling Schemes

Land Pooling Scheme (LPS) is a form of land procurement where all land parcels in an area are pooled, converted into a layout, infrastructure developed, and a share of the land, in proportion to original ownership, returned as reconstituted parcels. There are different variants of such schemes depending on how the infrastructure development is financed. In most cases, a share of the developed land is sold to finance its cost, whereas in others, the land owners give a betterment charge to cover the infrastructure cost.

Such LPS are a common feature in countries like Japan and Germany. In India, a few states like Haryana and Gujarat have successfully used land assembly programs where the owners agree to exchange their barren lands for infrastructure-serviced smaller plots. Gujarat has used its unique version of Town Planning Scheme (TPS), in existence for more than half a century, to guide the development of Ahmedabad city and its surrounding infrastructure⁴. The Government of Andhra Pradesh is currently undertaking the largest ever LPS in India as it procures over 30,000 Acres for the construction of its new capital city, Amaravati.

Relevance to Smart Cities

Gujarat cities such as Ahmedabad and Surat can continue to leverage TPS schemes due to long and successful experience in managing these schemes. The success of TPS mechanisms depends on clear land titles and the possibility of assembling larger tracts of land for neighborhood renewal.

In addition to the above schemes, there are other tools for value capture that cities could look at. These are

- **Air Rights** - In densely built up cities, where land is scarce, there has been a trend in recent years to develop on top of areas like railway yards and stations. In such cases, air rights can be sold through auctions. This would enable more dense development as well as efficient utilization of scarce urban space, besides generating revenues for the local government. The most famous examples of such air rights allocation are the Atlantic and Hudson Yards Projects in New York City, parts of both of which are developed on old railway yards. Similar developments can be auctioned off on bus and railway terminals in several Indian cities. CIDCO has demonstrated success in developing commercial and office space above suburban railways stations in Navi Mumbai.

⁴ <http://dspace.mit.edu/handle/1721.1/66885>

- **Transferable Development Rights (TDRs)** - Since most Indian cities have developed their urban form largely independent of modern urban planning norms, implementation of Master Plan poses a great challenge. Arguably the biggest problem is the acquisition of private land which have been reserved for roads and utilities, open spaces, and community assets in the City's Development or Master Plan. One strategy that has assumed wide acceptance in recent years is the allotment to the land owner of transferable development rights equivalent to the extent of land foregone. This involves separating the permissible development potential of the land from the land itself and allowing its transfer. Accordingly, the land loser is compensated with additional F.A.R of an equivalent extent which can be used by himself or transferred to a third party for use elsewhere in another zone (receiving zone) provided the infrastructure in the receiving zone supports the transferred F.A.R. A TDR certificate is issued to the land owner and this certificate can be redeemed elsewhere. This opens up the possibility of a market where such development rights can be bought and sold. The Mumbai Development Control Rules 1991 granted the suburbs a total F.A.R of 2, with the base F.A.R of one allowed free of cost and the remaining

to be purchased by developers in the form of TDRs⁵. Following this, many other Indian cities like Hyderabad have allowed additional F.A.R to acquire land for widening roads.

- **Land Value Tax** - Considered as the most ideal value capture tool - used by countries like Denmark, Australia, and New Zealand - is an annual land-value tax on the increment of (built-up) land value. Apart from capturing any value increment, it helps stabilize property prices, discourage speculative investments and is considered as least distortionary and most efficient among all value capture methods. But the absence of transparent price discovery in Indian property markets and poor state of land titles make its administration difficult. Despite this, a vacant land tax can be a useful instrument to discourage speculative hoarding of land, with attendant upward pressures on land prices, and incentivize land owners to develop the land. Though many Indian states have such tax, hardly any enforce their collection with any degree of rigor.
- **Capital Gains Tax** - Capital gains tax is the commonest form of value capture. The tax is imposed when the property sold and accrues on the incremental

⁵

http://www.ibanet.org/Publications/Real_Estate_Newsletter/Real_Estate_Sept_2011_India.aspx

value addition. The long-term capital gains tax rate in India is 20%.

Unfortunately, being a direct tax, it does not endow on the local government in India and therefore does not directly contribute to infrastructure and other local investments. Further, the lack of adequate information about market prices mean that capital gains are grossly under-estimated in India's context. Even assuming credible price information availability, such capital gains taxation suffer from the problem of cascading of taxes. Apart from the physical investments made in the property, which is deductible, the land owner typically would have paid various forms of taxes like development fee, impact fee etc, which are generally not deducted from the capital gains calculation.

- **Betterment levy** - Betterment levy is a one-time upfront charge on the land value gain caused by public infrastructure investment. Great Britain for a period imposed a betterment levy equal to 40 percent of the land-value gain attributable to public investment⁶. This is also exercised in the United States using *special assessment district*, whereby annual levies are imposed on the district. An example of this is the WAVE streetcar system in

downtown Fort Lauderdale whereby the adjoining property owners would raise the funding gap required after the central, state and transportation grants. This is different from the TIF mechanism described in its frequency of incidence. This tax poses a similar problem to capital gains tax because of the disparity in market prices not being realistically reflected in government attributed rates (ready reckoner or circle rates). Secondly it is difficult to attribute specific gains in the land value to investments in infrastructure.

Thus there are a range of options available to city managers for value capture of infrastructure investments under the Smart City Mission. The options vary in their method of taxation (tax, charges or land dedication), frequency of incidence (one time vs recurring) and the subject of the incidence (residents, landowners, businesses). A sustainable financial plan taps into multiple options based on clear rules and predefined charges and annual increases for recurring taxes. There should also be scope for renegotiation of the tax rates periodically and varying rates based on proximity to the infrastructure investments. This paper demonstrates the range of options available to the cities for their resource mobilization.

⁶ 2009, Unlocking Land Values to Finance Urban Infrastructure, Land and Policy Options, World Bank