

INTERNATIONAL URBAN COOPERATION (IUC) - India

FINANCING SUSTAINABLE AND CLIMATE RESILIENT URBAN DEVELOPMENT IN INDIA

MANUAL

With Section on Emergencies (e.g., COVID-19)

May 2020



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ABBREVIATIONS

ADB	Asian Development Bank
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
BAB	Build America Bonds
BRT	Bus Rapid Transit
CBUD	Capacity Building for Urban Development
CEO	Chief Executive Officer
CIF	Climate Investment Fund
COP	Certificate of Participation
CTF	Clean Technology Fund
DBF	Danida Business Finance
DFI	Development Finance Institution
ESG	Environmental Social Governance
GAN	Grant Application Notes
GARVEE	Grant Application Revenue Vehicle
GCF	Green Climate Fund
GO	General Obligation Bonds
HPEC	High Powered Expert Committee
HRIDAY	Heritage City Development and Augmentation Yojana
HUDCO	Housing and Urban Development Corporation
IFIs	International Financial Institutions
IIFC	India Infrastructure Finance Company
IIPA	Indian Institute of Public Administration
IL & FS	Infrastructure Leasing and Financial Services
INCCA	Indian Network of Climate Change Assessment
JNNSM	Jawaharlal Nehru National Solar Mission
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
LDC	Least Developed Country
LIC	Life Insurance Corporation of India
LVT	Land Value Tax

MDBs	Multilateral Development Banks
Mn	Million
MOHUA	Ministry of Housing and Urban Affairs
MRT	Mass Rapid Transport
NABARD	National Bank for Agriculture and Rural Development
NIE	National Implementing Entity
NIUA	National Institute of Urban Affairs
NMEE	National Mission for Enhanced Energy Efficiency
O&M	Operations and Maintenance
OECD	Organisation for Economic Cooperation and Development
PE	Private Equity
PFC	Passenger Facility Charges
PMDO	Pooled Municipal Debt Obligation
PMAY	Pradhan Mantri Awas Yojana (Housing for All)
PPP	Private Public Partnership
RCUES	Regional Centres for Urban and Environmental Studies
SCB	Scheduled Commercial Bank
SCF	Strategic Climate Fund
SDG	Sustainable Development Goal
SDR	Special Drawing Rights
SIDS	Small Island Developing States
TIF	Tax Increment Financing
TNUDF	Tamil Nadu Urban Development Fund
UIDSSMT	Urban Infrastructure Development Scheme for Small and Medium Towns
ULBs	Urban Local Bodies
UNFCCC	United Nations Framework Convention on Climate Change
UPL	Unfunded Pension Liability
VC	Value Capture
WB	World Bank

PREAMBLE

India's cities are growing at a rapid pace and reflect the nation's transition from a rural to a quasi-urban society thus, demanding a vast transformation of urban infrastructure to ensure delivery of basic civic services. India's economic growth momentum cannot be sustained if urbanisation is not properly addressed. Therefore, cities will have to become the engines of national development¹. Managing sustainable urbanization in India will require the combined effort of increasing the level of investments, re-arranging and strengthening the framework for governance and financing and comprehensive all-round capacity building². Financing sustainable urban development is one of the most demanding challenges that India faces³. Indian ULBs face issues such as:

- Insufficient state financing;
- Deficient budgets due to lack of endogenous revenues to meet expenditures;
- Inadequate capacity to generate capital to maintain existing infrastructure;
- Misaligned long versus short-term capital requirement for infrastructure projects and
- High upfront capital requirements and perceived risks compared to modest returns.

EU's International Urban Cooperation (India) programme aims at improved international urban policy diplomacy and increased decentralised cooperation between EU and India on sustainable urban development and climate change. The inception report of the programme clearly illustrates that financing urban development remains one of the biggest hurdles for sustainable urbanisation in India. Considering this background, the project team concluded that it is imperative to empower and build capacity of the ULBs to identify and utilise the most appropriate financing and funding mechanisms through the development of the Financing Sustainable & Climate Resilient Urban Development in India Manual. The objective of the Manual is to assist Urban Local Bodies (ULBs) in India to:

- Navigate the complex financing and funding landscape;
- Identify suitable financial and funding instruments;
- Access and raise enough financing for sustainable urban development (infrastructure) and climate change projects and
- Develop the capacity to ultimately implement / execute projects that are sustainably funded (bankable projects).

¹ Purohit, Mahesh C. (2016). Financing Urban Infrastructure in India: an Overview of Policy Lessons. Discussion Paper DP/04. Macroeconomic Policy and Financing for Development Division. Economic and Social Commission for Asia and the Pacific.

² Ibid

³ GFA Consulting Group GmbH (2017). INDIA International Urban Cooperation: Sustainable and Innovative Cities and Regions EuropeAid/137773/DH/SER/IN. Inception Report.

EXECUTIVE SUMMARY

Today, lack of bankable projects and matching such projects to the appropriate sources of funding/financing is limiting sustainable and climate resilient development of Indian cities. The objective of this Manual is to provide information mainly to ULB's about the current situation with respect to financing urban infrastructure projects in India and some the instruments available to the ULBs to finance their projects. The Manual maps the key international and national financing institutions that support sustainable and climate resilient urban development in India and acts as a reference tool.

The chapters in the Manual cover the aspects of financing, funding and building capacity for sustainable and climate resilient urban infrastructure projects in India (Figure I).

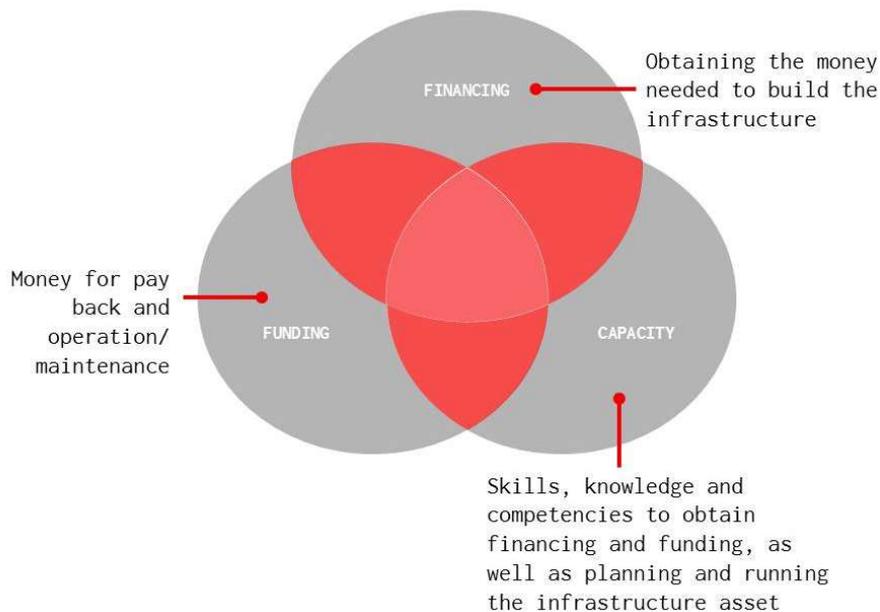


Figure 1: Integrating Financing, Funding and Capacity for Sustainable Urban Development

Today there are many sources to finance and fund sustainable and climate resilient urban infrastructure projects in India. These sources originate both domestically and internationally.

The Govt of India through various schemes supports the ULBs in implementing the much-needed projects to manage the rapid urbanisation of Indian cities. Schemes such as AM-RUT, HRIDAY, the 100 Smart Cities Mission, Swachh Bharat, etc. are already providing ULBs with much needed financial support. Similarly, almost all the IFIs, such as WB, ADB, AfD, GIZ and KfW are present in India to support India's sustainable and climate resilient urbanisation.

However, to access the available capital, ULBs need to demonstrate that they have the capacity to develop and implement bankable projects. ULBs should consider the following when raising capital for their projects:

- I. Raise capital internally through the various instruments mentioned in this Manual before approaching external sources;
- II. Blend / pool various financing and funding instruments by being creative and resourceful;
- III. Build internal capacities to manage financial and treasury matters and
- IV. De-risk / reduce the risks of the project. Regardless of whether projects are publicly or privately financed, ULBs should strive to minimize non-productive financing costs as much as possible. Reducing financing costs is mostly about reducing the overall project risks through proper risk allocations.

This Manual provides an overview of the different possibilities that ULBs should consider when planning to finance and/or fund their project. An overview of the approach to the main chapters (Chapters 2 and 3) is provided below.

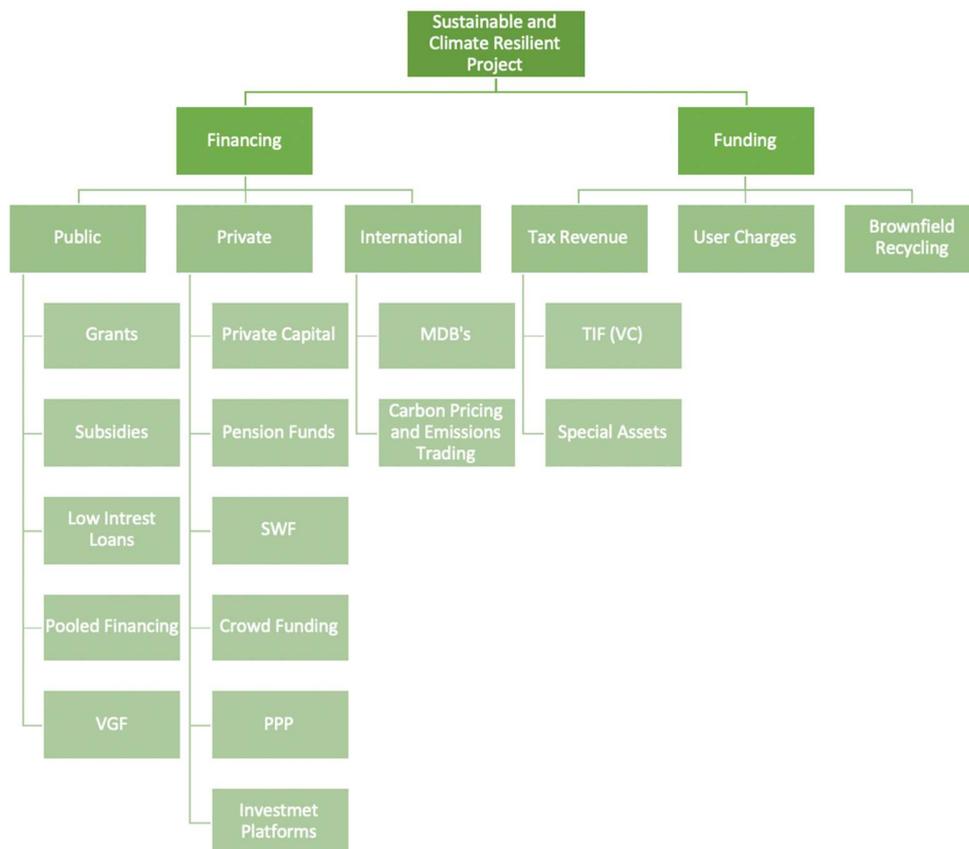


Figure 2: Illustrations of Aspects Covered in this Manual

1. INTRODUCTION

1.1. INDIAN URBANISATION CONTEXT

India has a total population of 1210 Mn. of which around 377 Mn. people live in urban areas and 833 Mn. reside in rural areas. The country is thus a predominately rural society but experiences a growth rate in urban population that is moving India to a quasi-urban society at a rapid pace. Between 2001 and 2011 the urban population grew by 28%⁴ (Ministry of Housing and Urban Affairs, 2019) and currently grows annually by 2,3%⁵. Extrapolating these growth rates, the number of people living in urban areas will exceed the number of people living in rural-classified areas sometime between 2040 and 2050 (UN World Population Prospects, 2018). This recent significant growth in urban population mirrors India's demographic and economic development in the past decades.

Today as the population has shifted away from smaller towns into larger cities, five cities have a population of more than 10 Mn., four cities more than 5 Mn., and 52 cities have more than 1 Mn., together accommodating almost half of India's total urban population. The UN projects a continuous strong growth especially in those higher size classes until 2030 and beyond⁶. Delhi, for example, is estimated to become the most populous city in the world by 2028⁷.

1.2. KEY URBANIZATION CHALLENGES IN INDIA

The rapid urbanization in India has been accompanied by the inability to supply basic urban services at the same pace as the growing demand of a rising population. These gaps are apparent in providing:

- Affordable and decent housing;
- Clean and continuously available water;
- Sewerage and sanitation services;
- Municipal waste management and
- Mobility/ transportation solutions.

For instance, the total housing deficit as envisaged by PMAY, India's national urban housing program is 20 million urban homes. It identifies 18 million slum households and another 2 million non-slum urban poor households as those that need to be provided for⁸. Further, 163 million people lack access to clean drinking water in India. The World Bank estimates that 21 per cent of communicable diseases in India is linked to unsafe water and the lack of hygiene practices⁹.

⁴ Ministry of Housing and Urban Affairs, 2019

⁵ UN DESA Population Division, 2018

⁶ UN World Population Prospects, 2018

⁷ UN World Urbanisation Prospects, 2018

⁸ <http://mohua.gov.in/cms/pradhan-mantri-awas-yojana.php>

⁹ <https://water.org/our-impact/india/>

1.3. KEY CLIMATE CHANGE RELATED CHALLENGES IN INDIAN CITIES

One of the major regions that will be impacted by climate change is South Asia, especially India mainly because of its diverse terrain. India faces an alarming environmental and socioeconomic challenge in its effort to protect its fast depleting natural resources. Water and air quality are worsening day by day due to increase of various pollutants in the atmosphere.

A report by the INCCA estimates that climate change will impact India in the following manner:

- Warmer seasons: Average temperature rise of 2.0°C;
- Increase precipitation: Lower frequency of rainy days with increase intensity;
- Cyclonic disturbances: Lower frequency, increased intensity with risk of storm surges;
- Sea level rise: 1.3 mm/year on average;
- Fresh water supply: High yield variability from 50% increase to 40-50% reduction;
- Floods and droughts: increased risks of floods and droughts;

In addition, the sectors that will be subjected to the highest exposure to climate change are the country's coastal eco-systems, biodiversity and agricultural productivity. Besides, the region is already subject to natural hazards, such as the 2013 Uttarakhand floods landslides, the 2015 Chennai flood and the 2016 drought. On 19 June 2019, the city of Chennai, one of the largest cities in India was declared "Day Zero" by Chennai city officials. It was the day when all the four main reservoirs supplying water to the city had run dry and there was almost no water left to supply. Of Chennai's total requirement of 830 MLD (million litres a day) water, the Chennai Metro Water Supply and Sewage Board (CMWSSB) was able to supply only about 525 MLD during the worst days of the crisis.¹⁰

There is also evidence of prominent increases in the intensity and/or frequency of many extreme weather events such as heat waves, extended dry spells and intense rainfall. The adverse impacts of such disasters range from hunger, vulnerability to diseases, loss of income and livelihoods. As per the World Bank, an increase of 2°C in the world's average temperature in the next few decades will only make India's monsoon more unpredictable. The shift in rain patterns across India is predicted to leave several areas under water and others without enough water even for drinking. In India, more than 60% of the crop area is rain-fed, making it highly vulnerable to climate-induced changes in precipitation patterns. A warmer climate is also expected to slow down the poverty reduction rate.

Though climate change will affect everyone's lives in the region, it is the poor who will be the most affected as they are the ones largely dependent on rain-based agriculture and have no or minimal resources to sustain their livelihood. Melting of glaciers and loss of snow present a significant risk to reliable water resources in India. Main rivers such as

¹⁰ <https://thewire.in/urban/tamil-nadu-water-crisis-chennai-city>

the Ganges, Indus and Brahmaputra, depend significantly on snow and glacial melt water, which makes them even more susceptible to adverse impacts of global warming. This could further increase the risk of flooding of low areas and pose a threat to agriculture¹¹.

Thus, India is amongst the countries most vulnerable to climate change. It has one of the highest densities of economic activity in the world, and very large numbers of poor people who rely on the natural resource base for their livelihoods. One of the most significant ways that climate change will impact the lives of people in India will be through its water resources. While water sustains life, it all too often wreaks havoc through devastating floods and droughts. A changing climate will only aggravate these shocks¹²¹³.

1.4 KEY CHALLENGES IN RAISING CAPITAL

Currently, the different sources of revenue that the Indian ULBs have access to include:

- Tax revenue (property tax, tax on electricity, toll tax, entertainment tax);
- Non-tax revenue (user charges, building permission fees, sale and hire charges);
- Grants-in-aid (from state and central governments) and
- Debt (loans borrowed from financial institutions and banks, and municipal bonds).

While cities are now required to raise more financing for urban projects, they do not have the required fiscal and technical capacity^{8,9}. A High-Powered Expert Committee (HPEC) observed that cities in India are amongst the weakest in the world, both in terms of capacity to raise resources and financial autonomy. Even though cities have been getting higher allocations from the centre and states, their own tax bases are narrow. Further, several taxes levied by cities are still mandated by the state government. Because of their poor governance and financial situation, cities also find it difficult to access external financing.

The landscape for urban infrastructure financing is diverse and at times complex and opaque due to the numerous instruments available and the variety of actors involved. The emergence of sustainability or climate change focused instruments or institutions in this space has prompted new, configured for purpose and innovative financing solutions. These are certainly valuable additions to the landscape. However, the experience for Indian ULBs attempting to navigate this sustainable urban infrastructure financing space can be potentially overwhelming.

The Manual is structured along generic financing and funding concepts. It is expedient to break down and organise the large variety of available instruments into relatively simple concepts, to foster a basic understanding of the mechanisms at play. The Manual can help

¹¹https://eprints.lancs.ac.uk/id/eprint/125076/1/CLIMATE_CHANGE_AND_ITS_IMPACT_ON_INDIA_A_COMMENT.pdf

¹² http://web.worldbank.org/archive/website01291/WEB/0_CO-78.HTM

navigate through a variety of options and enable accessibility to urban infrastructure finance that is fit for purpose.

1.5. METHODOLOGY

The Manual has been developed on three methodological steps that mirror the broad concept of a simple and linear input-output model. For simplicity, it is described as a linear process of consecutive steps, but practically, the different phases are co-dependent and mutually reinforcing and therefore rather depict an iterative process.

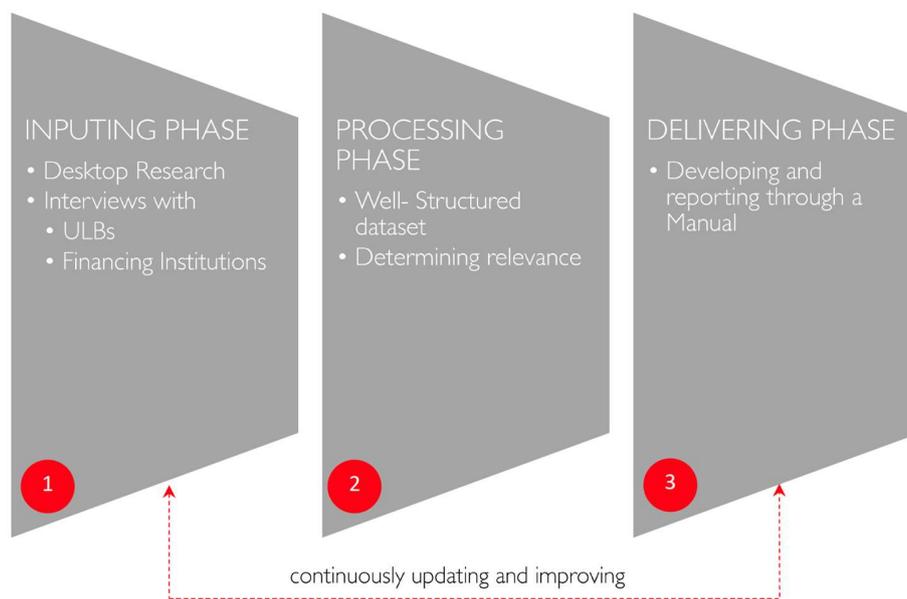


Figure 3: Financing Manual Methodology

The Manual was developed between January and July 2019. During this period extensive desk research and interviews were carried out with the aim of:

- Developing a common understanding of the terms used on urban infrastructure financing; understand
- Identifying the best practices adopted globally on raising capital for urban infrastructure projects;
- Understanding the Indian context on the subject including the challenges and capacities of ULBs and
- Reviewing the mandate and modus operandi of both the international and Indian financial institutions.

A questionnaire was developed both for the demand side (ULBs) and the supply side (FIs) as a basis for the interviews. The CEOs of Smart city Nagpur and Gwalior were



interviewed as part of the demand side assessment and the representatives of AfD, EIB, EU Delegation, GIZ, KfW, Yes Bank were interviewed as part of the supply side assessment.

2. SUSTAINABLE AND CLIMATE RESILIENT URBAN DEVELOPMENT FINANCING

2.1. BASIC CONCEPTS

Put simply, urban infrastructure financing is no different from purchasing private property, which usually entails a down payment sourced for instance through personal savings, and a mortgage, whose cost respectively is determined through the down payment and the risk profile of the borrower. Likewise financing urban infrastructure entails an expedient combination of tools that are a product of considering aspects of equity, debt and risk.

Equity refers to the capital required to leverage further financing through debt capital. It is to an urban infrastructure project, what the down-payment is to the private homeowner. Similarly, the infrastructure project owner raises the full capital amount by seeking a traditional loan at cost in form of interest rates besides the obligation of repayment. Together, both equity capital and debt capital, correspond to the full needed capital amount to establish a project. Different instruments for equity and debt capital exist in the infrastructure financing space. Accessing them usually comes with a price that may vary depending on the third important generic concept: risk. The risk inherent to a project or the entity accessing financing will determine the cost connected to obtaining either equity or debt capital. Also, different instruments exist that aim to mitigate risk or improve the risk situation.

The instruments corresponding to one or several of these generic financing concepts of equity and debt are available through multiple institutions. Traditionally, the responsibility for urban infrastructure was entirely with public sector, which predominately drew from debt financing possibilities based on the public sector's advantageous low-risk profile. However, from the 1980s, the private sector has been playing a larger role in financing infrastructure, often with further mandates to operate such urban infrastructure.

Against aspects of sustainable development and resilience, the following passages lay out the variety of available financing instruments along a concentric logic with endogenous, municipal, resources at its core. As those are seldom enough against the financing needs for an urban infrastructure project, they can be and should be blended with instruments made available through:

- Additional public sector financing options;
- Private sector financing options;
- Financing options by IFIs.

Most likely, urban infrastructure will be financed through a combination of instruments made available through multiple institutions. In fact, depending on the aim and scope of an urban infrastructure projects, the ULBs will need to be able to navigate the complex

landscape, choose the appropriate instruments and blend them leveraging each instruments advantage, while mitigating the specific disadvantages.

The following financing options are thus structured along these generic concepts. The different sub-chapters are structured by origin of the financing instrument, and will elaborate the concepts of equity, debt and risk and their corresponding instruments.

Finance vs Funding

The distinction between financing and funding urban development is often not clear and the terminology is used interchangeably. Drawing a clear line in the use of the terminology enhances a better comprehension of the financial landscape for sustainable urban development and supports informed decision-making, because the terms are not the same.

The aspect of financing in this Manual is concerned with raising the usually high upfront capital needed to pursue and deliver infrastructure. *"Financing refers to obtaining and structuring the money needed to build an infrastructure asset, whereas funding refers to paying back the financing (where it is not from current cash flows) and the money needed to operate and manage an infrastructure asset"*¹⁴.

Phrased from an actor perspective, the one:

- Who finances a sustainable urban development project means who, at the outset, raises the cash to build it;
- Who funds the urban development project is a question of who ultimately pays for it over the long-term.

Equity

Equity financing entitles the ownership of the underlying asset and ultimately represents capital at-risk. It is at risk, because defaulting on the loan usually leveraged through equity capital can result in the seizure of the asset and consequently also the loss of ownership initially entitled through the raised equity capital. The needed equity capital for an urban infrastructure project can be theoretically sourced from the municipal budget and accounts, as those are often strained, it is often raised from direct grant or subsidy from IFIs and/or higher-tier governments on a national or state level. Also, private investors provide equity capital, though at a higher cost than e.g. debt capital as it is at-risk capital¹⁵.

Debt

Debt financing is borrowing money without giving up ownership. Debt capital comes often in form of a loan or a bond that entails a clear re-payment scheme specifying for instance the interest rate or the dates for repayment. In comparison to equity financing it is considered less risky and the return expectations for the investor much lower.

¹⁴ C40 Cities Finance Facility

¹⁵ Handbook on Urban Infrastructure Finance- Julie Kim, 2016

Risk

The cost of urban infrastructure financing, e.g. the interest rates or premiums, arising from accessing equity and debt capital is a reflection of the risk associated by the capital-providing actors with the infrastructure project or the institution applying for capital as well as the instrument itself. Equity capital is at-risk capital and is hence from an investor's point of view significantly riskier and the return expectations are higher. The access to equity capital therefore comes at a higher premium than for debt capital. Ultimately, regardless of whether infrastructure projects are publicly or privately financed, cities should strive to minimize non-productive financing costs as much as possible. Reducing financing costs is mostly about reducing the overall project risks through proper risk allocations.

These basic financing concepts are the generic lenses utilized to illustrate the variety of financing instruments for sustainable urban infrastructure in the following sections.

2.2. ENDOGENOUS FINANCING OPTIONS

Endogenous financing options in this Manual refer to municipal financing with a focus on helping Indian cities become more resilient in the long run, without relying on external capital. Usually ULBs rely on financing from the central government, international institutions and private finance actors. However, tapping into endogenous financing options, will diversify the range of available instruments for infrastructure finance and will therefore potentially increase the future financial agility of the cities.

Equity

In the context of municipal financing, the taxpayer foremost resembles the equity holder. Through different taxes such as municipal sales tax, property tax, or motor vehicle tax as well as other non-tax municipal revenue streams (e.g. building permit fees, public utility tariffs, park entrance, fees, environmental non-compliance fines, leasing or renting fees/charges, etc.), the city establishes a revenue stream that can be accumulated in a fund or potentially be directly invested in the project.

Increasing own-source revenues is often a matter of the structural governance context of a municipality. Not every local governmental body has the fiscal or legislative powers to raise its revenues. In a global study, only 16% of countries sampled were found to grant significant taxation autonomy to their local governments. However, many cities have begun to effectively prioritize own-source revenues, such as Durban, whose city budget is based on 90% of endogenous financing. Particularly leveraging property tax has proven to be widely effective. The city of Bangalore, for instance, achieved to raise its property tax within the first year by a third as result of several property tax reforms in 2000. The additional revenue from improving municipal revenue streams can be directed towards sustainable urban infrastructure projects¹⁶. Nevertheless, even a relative tax autonomy requires strong institutional capacities of the local governing bodies to collect and manage taxes as well as manage projects.

¹⁶ Global Review of Finance for Sustainable Urban Infrastructure, 2017

Another strategy to accelerate local resources can be the leverage of existing public assets by selling or leasing municipality owned land. This can raise the required high-level upfront capital for an infrastructure project. A prerequisite to this strategy is the insight of all publicly owned assets and land and their corresponding value. Where an effective land valuation system is not in place, an auction-based system has shown to be fruitful for many cities to raise a significant amount in respect to their municipal budget through selling land. Leveraging existing local assets is closely linked with issues of institutional capacities as this strategy particularly requires a trusted and coherent legal framework, strong institutions, and clearly defined and enforceable property rights¹⁷.

While the land sale is a viable strategy to raise upfront capital at one point of time, the disadvantage lies in the difficulties to steer or incentivize sustainable urban infrastructure development once the land has been sold. Maintaining the ability to govern the infrastructure development strategy, an alternative option can be the lease of public-owned land, instead of the sale. This approach allows to leverage land for new infrastructure development with the possibility to tie it to a rental agreement that specifies conditions that are set in the land use plans or on sustainability targets.

Cairo raised US\$3.12 billion through the auction of 3,100 hectares of desert land for a new town in 2007. The amount generated from this land-sales auction was about 117 times greater than Egypt's total property tax, and approximately one-tenth of Egypt's annual national revenue. In Cairo, these funds are being used to reimburse the costs of infrastructure and to improve road connectivity in the metropolitan area. Similarly, an auction of 13 hectares of land in the new financial centre in Mumbai in 2006 generated US\$1.2 billion, more than 10 times the total fiscal spending of the Mumbai Metropolitan Regional Development Authority in the previous year. These funds are used primarily to finance metropolitan regional transportation projects.

Debt Capital

Most cities finance their infrastructure through loans obtained from commercial or public banks. Especially smaller and mid-size cities can benefit from the strong banking relationships, which allow them overcoming the limitations of accessing loans from large banking institutions. The local municipal banks possess a greater comprehension and ability to discuss the risks by an intimate knowledge of the borrower's cash flow and its ties to suppliers and taxpayers. In India, such banks exist on higher governmental level (state, national) level, and are uncommon on a municipal level. However, there are also many cooperative banks at the local/state level that may be accessed for capital.

¹⁷ Global Review of Finance for Sustainable Urban Infrastructure, 2017

One of the most robust financing instruments available to cities is municipal bond financing. Municipal bonds have the potential to elevate the ability of cities to endogenously finance their infrastructure project fully or partially. Municipal bonds are an attractive instrument to municipalities as they allow to raise immediate capital cheaply due to the often-low interest rate and long-term maturity.

There are a range of different municipal bonds varying in terms of the issuing entity, maturity, liability in a default case, formal processes of issuing, additional benefits to the issuer and investor or assigned use ranging from bonds particularly issued for specific projects to different types of projects. An indicative overview of different categories and types of municipal bonds are listed in the table below.

Category	Debt service secured by	Special requirements	Tax incentive	General uses/ specific case examples
General Obligation (GO) Bonds	Full faith credit of issuer, unlimited guarantee with tax revenue	Voter approval	Tax-exemption on interest income to investors	Any projects that do not generate revenues (e.g., city hall, library, public school, park, prison)
Revenue Bonds	Revenues from service charges; savings from efficiency upgrades	Creation of special entity with authority to levy service charges	Tax-exemption on interest income to investors	Any projects that generate revenues (e.g., toll roads, airports, parking garages, energy efficiency upgrades)
Special or Limited Tax Bonds	Limited to specific tax proceeds (e.g., gas tax, special assessment, incremental sales, ad valorem property tax)	Special enabling legislation	Tax-exemption on interest income to investors	Los Angeles County Metropolitan Transportation Authority (LA Metro) Measure R (half-cent 30-year incremental sales tax)
Anticipated Notes (e.g., GARVEE bonds)	Anticipated proceeds, e.g., expected future federal grant disbursements	Special enabling legislation; eligible for tax-exempt investors	Tax-exemption on interest income to investors	Grant Anticipation Revenue Vehicle (GARVEE, highways), Grant Anticipation Notes (GAN, transit)
Tax Credit Bonds (e.g., BAB bonds)	Full faith credit of issuer, guaranteed with tax revenue	Special enabling legislation; allows tax-exempt investors	Direct tax credit to investors or direct payment to state/local governments	School modernization program, renewable energy, surface transportation, and other infrastructure projects
Certificates of Participation (COP)	Revenues from leasing facilities or equipment	Creation of special entity with authority to collect lease revenues	Tax-exemption on interest income to investors	Public transit, water/ wastewater treatment, prisons, office buildings, parks

Figure 4: Major Municipal Bond Categories and Key Characteristics¹⁸

The largest and most mature municipal bond market in the world can be found in the United States, where many municipalities successfully utilized municipal bonds to self-

¹⁸ Handbook on Urban Infrastructure Finance- Julie Kim, 2016

finance major infrastructure projects. State and local governmental bodies issued bonds that ranged in total from US\$380 billion to US\$500 billion each year for the period 2005–2011. Also, emerging economies increasingly make beneficial use of this instruments. Cities such as Johannesburg or the Brazilian municipalities provide good practice examples. The latter collected about US\$3.8 billion for urban redevelopment projects by issuing more than 10 million securitisation bonds.

Also, few Indian ULBs successfully issued municipal bonds. As the first Indian municipality, Ahmedabad (Ahmedabad Municipal Corporation) achieved a fiscal surplus from a deficit position by issuing a municipal bond in 1998 worth approximately US\$15 million (Rs 1 billion) without a state guarantee among other measures such as improving credible accounting mechanisms and tax collection¹⁹. Since then many ULBs explored credit ratings, but only a few managed to secure credit ratings acceptable to investors and even fewer issued municipal bonds. Over the last 20 years, India has issued ~INR 2700 Crores (USD 386 million) worth of municipal bonds, which is relatively insignificant to the total Indian bond market size of about USD 1.7 trillion²⁰.

Municipality / Local Body	Year	Rating	Amount (Rs Crore)	Coupon (%)	10 year G-Sec
Ahmedabad	Jan, 1998	AA (SO)	100.00	14.00	13.3
Bangalore	Nov, 1998	A (SO)	125.00	13.00	12.2
Ludhiana	Sep, 1999	LAA (SO)	17.80	14.00	11.6
Nasik	May, 1999	AA (SO)	100.00	14.75	11.7
Bangalore Water Supply Board	Aug, 2000	Not Available	10.00	12.90	11.4
Kanpur	Dec, 2000	LA+(SO)	50.00	13.50	10.9
Madurai	Mar, 2001	LA+ (SO)	30.00	12.25	10.3
Ludhiana	Jun, 2001	LAA- (SO)	2.00	13.50	9.3
Tamil Nadu Urban Dev Fund	Aug, 2001	LAA+(SO)	106.10	11.85	8.9
Nagpur	Nov, 2001	LAA- (SO)	31-30	13.00	7.8
Ahmedabad	Mar, 2002	AA+ (SO)	100.00	9.00	7.4
Hyderabad*	Mar, 2002	AA+ (SO)	82.50	8.50	7.4
Chennai*	Mar, 2005	AA (SO)	30.15	5.38	6.6
Nagpur*	Mar, 2007	AA (SO)	21.70	7.75	8.0
Vishakhapatnam	Sep, 2010	AA-(SO)	30.00	9.50	7.9

*Tax Free Bonds
Source: SBI Capital

Figure 5: List of Municipal Bonds issued in India

The main concerns for Indian municipalities to issue a municipal bond revolves around their creditworthiness. According to the World Bank, only around 4% of the 500 largest cities in developing countries are classified as creditworthy in international financial

¹⁹ Global Review of Finance for Sustainable Urban Infrastructure, 2017

²⁰ Bridgespan 2018

markets, and only 20% are creditworthy even in local markets. Indian cities are not excluded. Some of the constraints of the cities are:

- Overlapping jurisdictions between the state government and the municipality thus resulting in low accountability;
- Political interference in day-to-day management;
- Low user charges and poor collection efficiency;
- Limited and not buoyant enough tax base;
- Lack of managerial capability to plan and implement projects;
- Lack of capacity to manage finances and treasury operations;
- Outdated municipal accounting practices misaligned with capital markets;
- Inadequate legal framework governing municipal borrowings not allowing creation of charge on immovable assets in most states;
- Absence of robust economic, legal, financial and project viability.

However, municipal bonds are an effective financing instrument that can be also helpful to invest in sustainable urban infrastructure. Types of municipal bonds tailored towards this use appear in different forms as green/climate bonds, green obligation bonds, social impact bonds, project bonds and similar others. A green bond, like any other bond, is a fixed income debt instrument where capital is raised through the debt capital market. The key difference between a “green” bond and a regular bond is that the issuer publicly states that the bond proceeds are used to fund “green” projects, assets, or business activities with an environmental benefit, be it renewable energy, low carbon transport, forestry, or others that mitigate climate change²¹.

The global municipal green bond market, valued at about US\$6 billion in 2015, is a relatively small (around 15%) part of the climate-related bond market, but it is fast-growing. Major players in these markets are the MDBs and investment banks. For example, urban projects account for an estimated 20–25% in the World Bank’s green bonds portfolio²². Green bonds offer several benefits:

- They can give issuers access to a broader range of investors than regular bonds or other asset classes, including institutional and other investors with ESG investment policy requirements;
- The repayment of the bonds is tied to the issuer rather than the success of the green projects, which may be perceived to have higher risk of non-repayment;
- Increasing demand for the bonds is also likely to drive increasingly favourable terms and a better price for the issuer, compared to a regular bond and
- Green bonds can enhance an issuer’s reputation and can serve as an effective way to demonstrate its commitment to the environment and to improve its own environmental performance.

These benefits need to be weighed against potential drawbacks such as:

²¹ Handbook on Urban Infrastructure Finance- Julie Kim, 2016

²² Global Review of Finance for Sustainable Urban Infrastructure, 2017

- The processing and other administrative costs associated with a green bond could be greater;
- This would mean additional tracking, monitoring and reporting processes, as well as up-front cost to define the bond's green criteria and sustainability objectives;
- Investors may also seek penalties for a default, whereby a bond is paid in full, but the issuer breaks agreed-upon green clauses and
- Since currently there are no standardized criteria for what makes a bond "green" and no strict requirements for tracking or reporting on proceeds, many issuers are subjected to criticism for "greenwashing" and accessing the green bond market without proper credentials.

Credit Enhancement & Risk

The ability for municipalities to obtain financing such as applying for a loan or issuing a bond for their infrastructure project is strongly dependent on their credit rating.

The process of strengthening a city's financial management and securing a credit rating demonstrates that the city has effective fiscal discipline and is potentially a trustworthy public or private partner for investment. As a prerequisite, cities need enough supply of own source revenues before municipal bond issuance can be viable, otherwise the default risk will be too high. There are a number of instruments from public and private financial actors aimed at enhancing the municipality's creditworthiness and decreasing a project's risk, thereby improving the municipality's access to capital and lowering the costs for debt.

"It is estimated by the World Bank that investing US\$1 in efforts to improve city creditworthiness can leverage more than US\$100 of private investment for sustainable urban infrastructure."

Source: The New Climate Economy, The Global Commission on the Economy and

Smaller and medium-sized cities often struggle to achieve higher credit ratings due to limited financial infrastructure and capacity. In such cases, resource pooling is an alternate way for smaller cities to access capital markets. Pooled financing mechanisms support local governments that are too small to undertake debt structuring and negotiations, or at least to achieve a lower cost of funds than they could achieve on their own. These funds usually come with specific eligibility criteria and may have sector focus. Governments often grant funds for project development and for subsidies to activities through such entities. India, for example, has built on its use of a national methodology to rate municipal credit ratings, by releasing Pooled Finance Development Fund Guidelines²³.

²³ <http://mohua.gov.in/cms/Pooled-Finance-Development-Scheme.php>

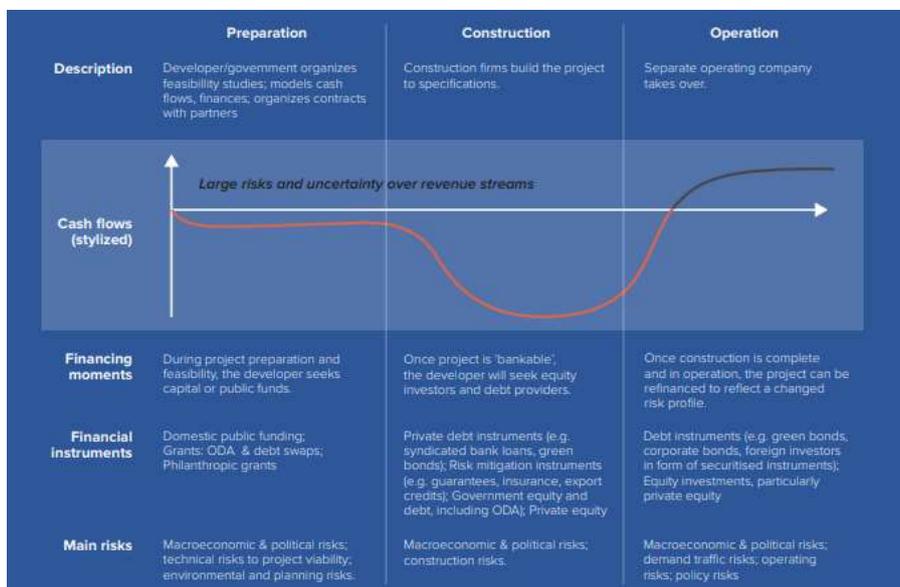
2.3. FINANCING OPTIONS FROM THE PUBLIC SECTOR

Urbanization often necessitates large upfront capital expenditures to keep up with the rapid rise in demand and to provide infrastructure services when and where needed. Basic infrastructure financing needs come from either building new infrastructure (greenfield) to support new demand or operating, maintaining, and rehabilitating existing infrastructure (brownfield).

Under the traditional approach where the public sector is fully responsible for financing infrastructure projects, the typical delivery model consists of:

- Hiring a design team to develop design specifications;
- Procuring a construction team separately to build according to the specifications, and
- Taking on the responsibility of operating and maintaining the built facilities.

Under this model, the O&M costs are generally embedded within the public sector’s operating budget. For design and construction services provided by outside contractors, the simplest way for the public sector to pay for their services is on a pay-as-you go basis. The pay-as-you-go option does not require any special financing arrangements because funding and financing are one and the same. For those projects that require large upfront capital expenditures—for example, large-scale greenfield projects or major rehabilitation of existing facilities—cities do need special financing arrangements.



Source: Adapted from Bhattacharya, Romani and Stern (2012)

Figure 6: Risk and Financing Considerations During Lifecycle of Illustrative Infrastructure Project

For fully publicly financed projects, first and foremost, cities can rely on their national and state/provincial governments for financing. Financing support from higher tier governments are intergovernmental transfers that normally take the form of direct grants, subsidies, low-interest loans, and/or credit enhancements. These intergovernmental transfers can be made to cities either as direct disbursements or through a revolving fund. National and state/provincial governments, for example, can treat the direct grants as an initial capital injection into a revolving fund, which can then be leveraged to issue low-interest loans to cities. Loans are repaid back into the revolving fund, which enable new loans to be issued for new recipients allowing the funds to “revolve” over time.

In general, revolving funds are not subject to annual appropriations and remain available to finance new projects without any fiscal year limitations. Many so-called infrastructure banks, whether at national or state/ provincial levels, in effect operate based on the same concept as a revolving fund.

Most intergovernmental transfers come from the fiscal budget of higher tier governments. In many countries, the primary source of these budgets are direct tax revenues at the national and state/provincial levels. Generally, national and state/ provincial governments can also choose to issue their own bonds to raise additional capital for infrastructure-related purposes, which can then be passed onto cities and local governments as grants or loans. Many such bonds are designed to serve specific policy goals, such as clean energy or other green initiatives. These bonds represent additional debt accrued to national and state/provincial governments secured ultimately with their own tax revenues.

Although the terms are often used interchangeably, grants and subsidies are two different types of funding that do not have to be repaid. In general, grants are used for defined purposes whereas subsidies represent special assistance (e.g., tax breaks) over a period. Relative to direct grants and subsidies, low-interest loans (sometimes referred to as “concessional” or “soft” loans) are used by national and state/provincial governments to further leverage their existing resources while posing less impact on their public budget. These low-interest loans help cities get better access to financing by providing the capital necessary to proceed with a project (for example, a “gap” financing) or by reducing the amount of capital borrowed from other more expensive sources.

Low interest loans are often subordinated to other loans on the project and function as a credit enhancement tool by reducing the risk borne by other debt investors. Subordinated loans are ranked below other debts so that repayments are made after all other debts are paid off. Cities can also receive direct credit enhancement support on a contingent or standby credit basis. Credit enhancements help reduce risk to investors and thus allow project sponsors to borrow at lower interest rates.

National development banks (NDBs) are government-backed, government-sponsored, or government-supported financial institutions. They have specific public policy mandates, which they support through their capacity to, for example, extend credit on favourable terms or take long-term equity stakes. Most NDBs are completely state owned, although this can mean mixed ownership involving multiple levels of government (e.g., the German Bank of Development Kreditanstalt für Wiederaufbau, KfW); or mixed national, foreign,

and multilateral ownership (e.g., the Development Bank of Kenya is owned by the Government of Kenya, Netherlands' Fin.-Maatschappij voor Ontwikkelingslanden N.V., the Commonwealth Development Corporation, Development Bank of Germany, and the International Finance Corporation). Most NDBs are structured to allow borrowing from other institutions or issued debt in domestic markets. Some NDBs receive their funds solely from central banks, national treasuries, or ministries of finance and, in such cases, tend to be only development funds rather than banks. NDBs tend to be early-stage investors, can take on finance risk more readily than private financiers, and are particularly effective in providing long-term financing in local currencies in their local credit markets.

Another differentiating feature among NDBs refers to their project exposure. Tier 1 loan²⁴ banks provide direct loans and take some or all of the project obligor's credit risk. In this case, the NDB acts like a commercial bank, extending credit directly to a project or a company. However, few national development banks are active infrastructure investors. According to a survey of 90 NDBs across 61 countries, only 4% have an infrastructure mandate. Many NDBs also have capacity deficits in managing highly complex deals and mechanisms by themselves, such as interest rate hedging instruments or capital market guarantees²⁵.

Commercial and public banks on a municipal (local) level, municipal development banks (intermediary municipal development funds) are useful for smaller and mid-sized cities, which otherwise would have limited access to commercial bank funding for their infrastructure projects. Often such intermediated loans are combined with local capacity building programs. Where it is considered that the capacities of local governments are lacking and/or the capital market is insufficiently developed to be able to service local governments, governments have established specialist financing mechanisms to service cities. These mechanisms can operate: i) as funds within established government ministries and agencies (such as India's Jawaharlal Nehru National Urban Renewal Mission or Australia's Better Cities Program); ii) as, effectively, banks (such as the Development Bank of the Philippines or Germany's Development Bank KfW); or iii) as an agency guaranteeing loans by DFIs or commercial banks (such as FINDETER in Colombia). These agencies can also exist at state/provincial levels such as the Provincial Development Banks in the People's Republic of China or the Tamil Nadu Urban Development Fund in India.

Various types of institutions are active in financing municipal infrastructure projects in India such as:

- Government institutions, established, owned and overseen by the public sector (HUDCO, LIC);
- Scheduled commercial banks (public sector banks, either nationalized or owned by a government agency, Indian privately-owned banks, foreign banks licensed in India);

²⁴ Tier 1 capital is a bank's core capital and includes disclosed reserves—that appears on the bank's financial statements—and equity capital. This money is the funds a bank uses to function on a regular basis and forms the basis of a financial institution's strength.

²⁵ Global Review of Finance for Sustainable Urban Infrastructure, 2017

- Specialized infrastructure finance entities that are privately owned or have only partial or indirect public ownership (IIFCL, IDFC, IL & FS);
- Sector-specific municipal development funds (PMDO, TNUDF);
- Capital markets.

The aggregate level of ULB borrowing for all of India is low. Short-term balance sheet lending dominates the Indian banking sector. For this reason, SCB loans to ULBs tend to have tenors of 3 – 7 years, with longer loans being offered by HUDCO (up to 15 years), or LIC and IIFC (5 –10, up to 15 years). State guarantees, though less common, are still required by HUDCO and by the dominant state-owned banks within a region. They insist upon a variety of security mechanisms, depending on their risk profile and their relationship with both the state organ that grants permission, and the borrower whose accounts they often manage. HUDCO appears to be slowly withdrawing from the municipal lending market. Others such as IDFC and IL & FS tend to rely on “private” transactions, that is, lending to special purpose vehicles and so on, but not directly to ULBs unless it is through special intermediation mechanisms such as the pooled municipal debt obligation (PMDO) credit facility. One of the characteristics of municipal borrowing in India is that true project finance, in which lenders can access only the revenue flows of the project itself and cannot reach into the municipal balance sheet, does not exist at the municipal level. In other words, while security mechanisms such as escrow accounts are commonly found, in the event of their failing the full balance sheet of the municipality is technically available for the satisfaction of debt claims.

Pooled Financing (debt): Pooled financing mechanisms support local governments that are too small to undertake debt structuring and negotiations on their own, or at least to achieve a lower cost of funds than they could achieve on their own. These funds usually come with specific eligibility criteria and may have sector focus. Governments also often channel grant funds for project development and for subsidies to activities through such entities²⁶.

Viability Gap Funding (grants or debt): Where a public good is involved that sub-/national governments want to foster (such as the environment), MDFs or DFIs may establish viability gap funding mechanisms to close the financing gap between possible revenues and the actual cost of quality infrastructure that would otherwise prevent an infrastructure project from being realised. Viability gap funding is usually a grant instrument (or a concessional loan) providing finance to projects that apply new technologies or are of a high environmental or social value for which traditional financing instruments do not provide affordable debt, and where private sector financing appetite is low²⁷.

2.4. FINANCING OPTIONS FROM THE PRIVATE SECTOR

The value of global commercial bank assets under management (AUM) is estimated at around US\$40 trillion, with a further US\$29 trillion managed by investment companies.

²⁶ C40

²⁷ C40

This makes commercial banks the largest potential source of capital for infrastructure projects. However, currently banks provide only around US\$300 billion to infrastructure projects annually²⁸.

Through equity investments, city governments can attract private investors to take a share in an infrastructure project, usually in a special purpose vehicle or a joint venture company. Potential investors include:

- Specialised infrastructure equity funds that pool investments in infrastructure in specific sectors and regions; and
- Institutional equity funds that seek long-term, sustainable investments – which mature infrastructure assets usually are – for pension funds, insurance companies, endowments, as well as sovereign (government) wealth funds.

In particular, institutional investors can play a significant role after an infrastructure asset has been built and is in operation – in which case, the institutional equity often works as a refinancing instrument for other – usually more expensive – financing instruments, particularly private sector debt which were used for the construction of an infrastructure asset. Similarly, some countries and regions, such as the European Union and India, have allowed infrastructure investment funds to structure debt instruments for both senior and subordinated (mezzanine) finance for long-term infrastructure investments.

Private Capital

The value of global private equity and infrastructure fund assets under management is estimated at around US\$2.7 trillion. Private equity (PE) firms invest listed or unlisted equity through several means and strategies, notably venture capital, mezzanine financing, and leveraged buyouts. Many PE firms target opportunities with enhanced risk adjusted returns through a combination of capital appreciation and cash yield, targeting between 15% and 25% returns. Most typically have short- to medium-term exit strategies. When investing in infrastructure, they tend to focus on unlisted assets that cannot be easily traded and therefore involve greater risk and return.

Overall, PE target rates are higher than those that most infrastructure projects can typically deliver. Strategies such as taking technology risk (innovative deployment of emerging technologies) do offer one area where these return expectations may be met. PE firms often act as conduits to channel investment from institutional investors to infrastructure. Because of their appetite for higher risk, PE firms can play an important role in financing infrastructure in developing countries where there is a lack of investment-grade bonds. PE investments thus offer one alternative to raising finance. Reflecting this, a number of developing countries, such as Senegal, have recently set up their own sovereign PE firms. Some large institutional investors have also started to build their own PE arms rather than outsourcing investments. However, the principal infrastructure focus of PE firms remains on assets in OECD countries, which is where they mostly fundraise and operate from.

²⁸ Global Review of Finance for Sustainable Urban Infrastructure, 2017

Pension Funds

Pension funds (including public pension funds and superannuation funds) and insurance companies hold around US\$37 trillion in assets globally. They are the two largest institutional investors in infrastructure as well. 42% of infrastructure assets under management are held by insurers; 24% by public and private pension funds. Insurance companies and pension funds share important similarities regarding their liability structure and risk-return profile (i.e. they earn income and/or convert liquid assets to pay beneficiaries and are generally risk averse).

While the growth fund numbers moving into infrastructure assets is promising, the allocation toward infrastructure within funds is low. Surveys of large pension funds, conducted by the OECD, suggest that less than 1% of their asset allocation in 2015 went to direct equity investment in unlisted infrastructure.

Sovereign Wealth Fund

The average size of a sovereign wealth fund (SWF) is like that of the world's largest pension funds. With an estimated volume of US\$6–7 trillion at the beginning of 2016, SWFs surpass the combined value of hedge funds and PE funds. Between 2014 and 2016, the proportion of SWFs that invest in infrastructure assets increased from 57% to 62% respectively. Unlike pension funds, SWFs have no specified liabilities. As such, SWFs are not constrained by increasingly tight solvency regulations (e.g., Solvency II) and thus can match very well to long-term infrastructure projects. The fact that SWFs favour greenfield investments demonstrates their appetite for large-scale, long-term projects.

Crowdfunding (equity or debt)

Although a still rather uncommon instrument in infrastructure financing, crowdfunding allows for the contribution of small amounts by individuals into an infrastructure project of particular interest to the public, for instance due to its potential social benefits to a neighbourhood. Due to its limited scale and the need to be quite specific in relation to the scope and funding targets, crowdfunding sources usually finance certain elements of an infrastructure project, such as small-scale feasibility studies, a water supply for a specific small community, or closing a financing gap that would otherwise prevent the realisation of a project ("last mile" finance). Crowdfunding can also be used as a debt instrument through the form of mini bonds, where pooled contributions can be structured effectively as a bond and can provide potential return on crowdsourced investments.

Public Private Partnership

A public-private partnership (PPP) is a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and the remuneration is linked to performance. PPPs for infrastructure projects can involve private sector participation in all stages of project development and operation – that is, the development, financing, construction, operation, maintenance, transfer, deconstruction or re-designation of public infrastructure. PPPs are one of the governance arrangements that can enable and secure private engagement in sustainable infrastructure investment. They feature prominently in the delivery of various infrastructure projects today and could be used to help scale up sustainable infrastructure.

Where governments opt to use PPPs, the delivery of environmental performance, including emission reduction and climate resilience, needs to be actively monitored and managed as an integral part of the project. PPPs are a tool for mobilising private investment to raise finance for infrastructure. Cities in developing countries increasingly welcome PPPs as an instrument for bridging the infrastructure investment gap, particularly given their limited access to capital markets. For example, several mass rapid transit (MRT) PPPs have been developed or are under development in India, including for metros in Mumbai, Hyderabad, and Chennai. Bangkok's Skytrain and Bogotá's TransMilenio BRT system also use PPPs as a means of attracting private investment.

Similarly, water PPPs are used in developing countries such as Colombia and various western African countries, and have significantly improved efficiency and service quality, especially by reducing water rationing. There are further successful PPP projects in cities in OECD countries, such as bicycle sharing schemes in many European cities, waste management programmes in cities such as Sydney, and building energy efficiency projects in cities such as Berlin and London. Indeed, in some countries PPPs account for around 5–10% of investment in national infrastructure (e.g. Australia and the UK with 5% and 10% respectively). PPPs when managed well can present numerous advantages for local governments, including additional infrastructure financing, improvement in project selection allowing more sustainable urban infrastructure, and substantial savings from skills and economies of scale provided by private actors.

In summary, effective PPPs, which work well for both the public and the private sector, are contingent on a well-designed framework and a well-implemented contractual agreement, with the fair transfer of risks and returns between local governments and private actors. It is also important explicitly to include “green outcomes” in contracts to ensure that smarter and more sustainable urban infrastructure projects are brought to fruition.

Investment Platform

To reduce transaction costs for investors, investment platforms can be set up at both municipal and national level to facilitate cities to attract private finance at scale. Some megacities have set up exchanges or investment platforms that match infrastructure projects and potential private sector investors, while smaller cities can attract private sector investment from national investment platforms through resource pooling. For example, the Chicago Infrastructure Trust was set up in 2012 to match public infrastructure projects to private investors. The city administration is paying US\$ 2.5 million of running costs, while private financial institutions have committed to investing US\$1.7 billion in the scheme. London also set up the London Green Fund (LGF) in 2009 – a £120 million fund for investment in schemes that cut London's carbon emissions. The LGF invests in waste, energy efficiency, decentralised energy, and social housing projects through three urban development funds (UDFs). By mid-2015, the LGF has invested £97 million in 16 projects, valuing approximately £700 million. Smaller cities can also benefit from regional and national platforms, such as the West Coast Infrastructure Exchange in the United States and the Green Investment Bank in the UK.

2.5. FINANCING OPTIONS FROM INTERNATIONAL ORGANIZATIONS

Several International organisations are financing urban infrastructure projects in India and are elaborated in the following section.

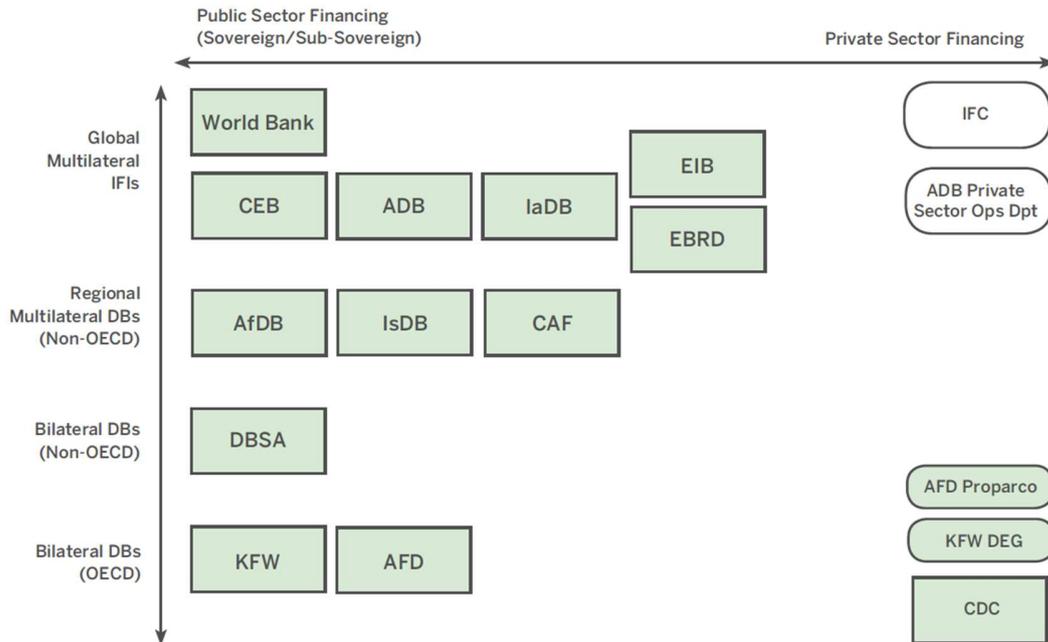
Multilateral development banks and bilateral donors

MDBs are important sources for mobilising capital for infrastructure investments (especially in low-income countries). With their expertise, technical assistance, and structuring abilities, MDBs can play a role from the early stages of financing through to later stages of operations. Their presence and convening power can create the perception of lower risk, lending credibility to a project to leverage additional finances. In addition to direct debt and equity finance, MDBs can: provide loan guarantees; offer in-house project preparation and technical project appraisal; undertake deal structuring; and generally, support developers through high-risk phases. The targeted application of MDB guarantees to address risks can be critical in the success of large infrastructure projects. Annual infrastructure financing from MDBs more than doubled from 2004 to 2013, from US\$20 billion to about US\$54 billion.

In March 2016, the European Investment Bank (EIB), the world's largest multilateral public bank strengthened its engagement to support long-term investment crucial for environmentally sustainable social and economic development in India by opening a Regional Representation for South Asia in New Delhi. A Euro 450 million long-term loan was given to finance the first metro line in Lucknow, including both construction of the 23km long new metro line and a fleet of metro trains and will result in an increase usage of public transport from 10% to an estimated 27% in the city of 3 million people. The European Investment Bank has provided more than Euro 1.34 billion for long-term investment in India since the first operation in 1993²⁹. The Asian Development Bank (ADB) has recently increased its lending capacity by 50%. However, many see MDBs as operating below their potential. Leveraging some of their unique features though could allow them to play a much larger role moving forward. Doing so may require more flexibility (e.g. in gearing ratios or willingness to accept a lower credit rating than AAA), and an increase in technical capacity to grow project pipelines and deal-flow.

Multi- and bilateral development banks have developed windows for lending and investing in private sector companies (and special purpose vehicles), including those providing urban infrastructure, at competitive rates. In some cases, longer debt repayment periods mirror concessional loans to governments. In addition, some projects may be able to access technical assistance grants for the planning and design of infrastructure projects and/or viability gap funding to apply an innovative technology. Also, various guarantees (see below under risk mitigation) are offered to reduce project risks and to make private sector-led projects more attractive to other debt and equity instruments.

²⁹ <https://www.eib.org/en/press/all/2016-080-eib-strengthens-engagement-in-india>



Source: Future Cities Catapult (2014)

Figure 7: IFI Typology along Public vs. Private Sector Financing

Carbon Finance and Emissions Trading

City governments can avail of an additional source of grant finance for their infrastructure projects if these lead to a quantifiable greenhouse gas emissions reduction. One example is the Clean Development Mechanism, which allows a low-emissions project to receive 'carbon credits' as certified emission reductions. These can be sold in an international market to, for instance, high-carbon-emitting companies that need additional credits to meet their country's emission reduction targets. Considering the collapse of carbon markets, the additional transaction costs for registration and monitoring of a project may currently not be justified. However, if carbon markets thrive again, they can form a viable financing source.

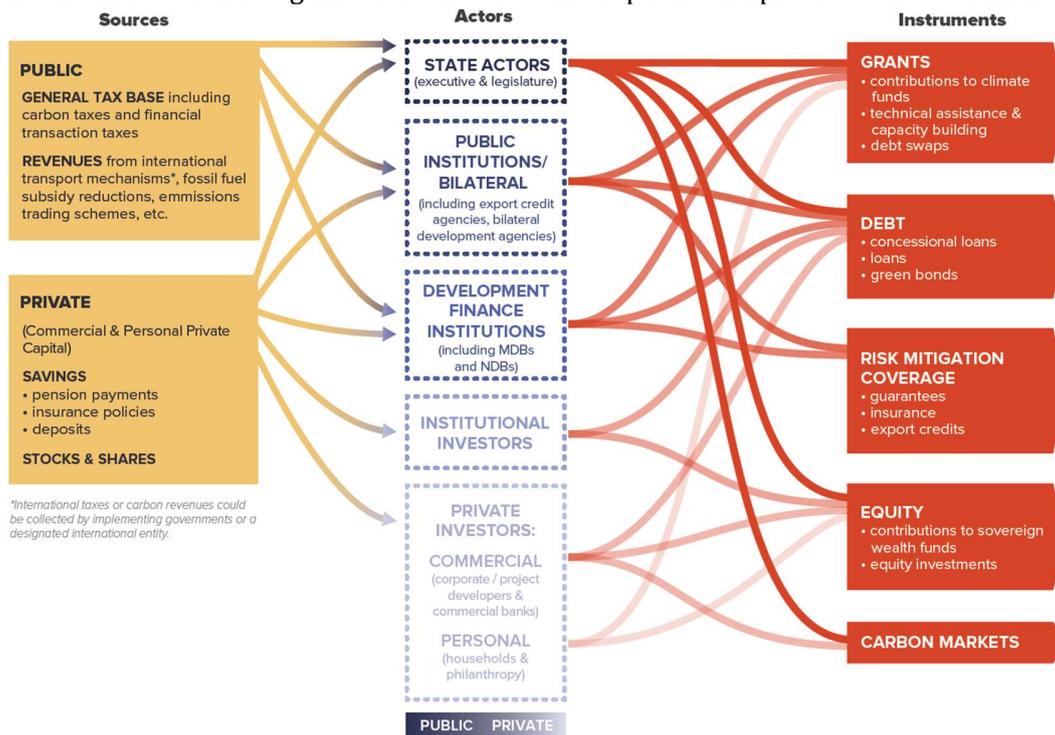
Green and Climate Funds: (debt, equity, grants, guarantees)

As part of the international agendas for sustainable development and climate change resilience, various global funds have been established that provide concessional loans and technical assistance grants to infrastructure projects that fulfil a specific set of eligibility criteria. For instance, the Global Environment Facility provides funding to projects that address at least one of the focal areas (biodiversity, international waters, land degradation, chemicals and waste, and climate change mitigation, or cross-cutting issues – there is e.g. a pilot cities program). Such funding is provided to public and private sector entities, as well as civil society organisations and research institutes.

Another example is the Green Climate Fund, which provides debt, equity, grants, and guarantees to projects with clear mitigation and/ or adaptation benefits of low-emission, sustainable, and climate-resilient development for both public and private entities. A

regional example for Asia is the Clean Energy Financing Partnership Facility, which is a debt and grants facility managed by the Asian Development Bank. This facility provides finance for clean energy projects that promote renewable energy and/or energy efficiency, particularly for technologically innovative approaches and pilots.

Figure 8 below captures the landscape of sources, actors and instruments of financing and the illustration is organised around the various public and private sources of finance.



Source: adapted from CPI and CICERO, 2015

Figure 8: A Summary of Financing Options

The next chapter of the Manual will cover the aspect of funding sustainable and climate resilient urban infrastructure projects.

3. SUSTAINABLE AND CLIMATE RESILIENT URBAN DEVELOPMENT FUNDING

3.1. BASIC CONCEPTS

As mentioned in Chapter 2 there is an important distinction between funding and financing. Financing is the leveraging of future funding (i.e., revenue) sources to raise the high level of upfront capital needed to expedite and deliver infrastructure when and where needed. In one form or another, financing is always tied to repayment obligations and does not address per se the fundamental problem of reducing the infrastructure funding gap.

Historically, many cities around the world have relied on direct grants and subsidies from IFIs and/or their national and state/provincial governments as the primary funding sources. These funds in turn come from taxes that are levied at national and state/provincial levels and, where available, from sovereign wealth reserves tied directly to publicly owned commodities and assets. Although limited, direct grants and subsidies from philanthropic sources can also be an important funding source for cities. These direct grants and subsidies have no repayment obligations and can be leveraged to secure infrastructure financing.

Outside direct grants and subsidies, the two prevalent funding sources available currently for infrastructure are taxes and user charges. Compared to taxes, user charges are still limited as a significant funding source for infrastructure, especially for non-utility sectors where the user-pay culture is yet to be established. This is particularly relevant in an Indian context. However, compared to taxes, it is generally easier to tie user charges directly to the cost of producing services so the perpetual funding shortage can be avoided. They are thus more self-sustaining sources in the long run. Imposing user charges can be politically sensitive, especially for sectors such as water supply where the services are often viewed as entitlements that should be subsidized. Despite potential public hostility, user charges can be the key to unlocking private sector capital and attracting innovative, self-sustaining financing solutions in the long run. Eventually however, taxes need to be supplemented with user charges and striking the right balance between the two sources will be critical in addressing the impending infrastructure funding crisis.

In addition to national and state/provincial taxes and user charges, cities should increase their self-reliance by enhancing their own local tax base. Regardless of who levies the taxes, the basic approach to taxing for infrastructure should be closely tied to the wear-and-tear of facilities and the actual cost of producing infrastructure services to make funding more sustainable in the long run. For cities specifically, the value capture approach has proven a particularly effective tool where the value of improved infrastructure is captured by monetizing the resulting increase in property values through various taxing schemes.

Development-based land value capture can help cities generate revenues for transit infrastructure, both for the initial investment and long-term operation and maintenance, while also promoting compact and transit-oriented urban development. This can be done either by taxing the increased value of land due to public spending on infrastructure servicing it, or through specific levies designed to recover the costs of infrastructure (e.g. betterment levies). Successful examples are found in both advanced economies (including in Hong Kong, Tokyo, London and New York City) and emerging economies (such as in Delhi, Nanchang and São Paulo). One of the most successful case studies of development land value capture is Hong Kong's "Rail plus Property" model. This model allows both government and the developer/ operator of the Mass Transit Railway network to capture the increase in property values along transit routes while maintaining the dense and efficient urban form. The Mass Transit Railway has over 4 million passenger trips a day, and in 2012 generated a net profit of US\$869 million for the operator (which has a 77% government ownership share) as a result of high ridership and efficient operation. The government also received significant financial returns on its overall investment – about US\$18 billion over 25 years from 1980 to 2005 – while maintaining a compact and connected city³⁰.

Many rapidly growing cities in emerging economies and developing countries, such as Nanchang and New Delhi, have favourable conditions for development-based land value capture, including strong economic growth, expanding urban population, rising incomes, and increasing motorisation and congestion. These conditions all cause land value to appreciate, particularly near transit stations. São Paulo, for example, has raised more than US\$1.2 billion in six years using related instruments. Land value capture schemes also require strong institutional capacities in local government.

In addition to taxes, user charges and value capture mechanisms, an indirect approach to dealing with the infrastructure funding issue is to reduce the overall funding needs;

- I. One option is to increase the overall project efficiency and minimize the total project costs through a lifecycle approach that integrates design and construction with operations and maintenance (O&M). The PPP delivery model is the primary mechanism that utilizes this lifecycle approach, because O&M costs are often a large part of infrastructure funding needs;
- II. Another way is to increase O&M efficiency through various conservation and efficiency measures, demand management, and congestion pricing strategies that are aimed at maximizing the use of existing facilities. Most sustainability initiatives and smart city concepts serve this purpose, and
- III. Finally, reducing non-productive financing costs such as overheads associated with administration of the finances, hiring of external agencies, transaction costs

³⁰ Hiroaki, S., Murakami, J., Hong, Y. H., and Tamayose, B., 2015. Financing Transit-Oriented Development with Land Values: Adapting Land Value Capture in Developing Countries. Urban Development Series. Washington, DC: World Bank. doi:10.1596/978-1-4648-0149-5. License: Creative Commons Attribution CC BY 3.0 IGO

etc. is another indirect way to reduce funding needs, which can be achieved by various credit enhancements tools that ultimately reduce overall project risks.

3.2. FUNDING OPTIONS

In the following sections, the Manual will take a deeper look at the different funding options and how the decision makers in the Indian ULBs can implement some of these tools in their context.

3.2.1 Taxes and other revenue related sources

Where user-pay culture is not well established, such as in some transportation and social infrastructure sectors, most infrastructure funding generally comes from tax revenues. Cities can sometimes expand their local tax revenues within the current tax regime. In most cases, however, cities must be formally empowered by their national and/or state/provincial governments for the enhanced taxing authority.

Tax revenues can come from general tax bases, such as income, sales, or property tax, or from those bases designated specifically for infrastructure purposes such as, for example, motor fuel taxes or vehicle registration fees in the case of the surface transportation sector. All levels of governments can draw from these sources for infrastructure funding needs. Other than sales tax, many local tax revenues are generated by levying various forms of property taxes for the value capture option.

Figure 9 below summarizes a list of infrastructure funding sources for cities that are derived from tax revenues and other funding sources.

Extensive evidence since the 1980s indicates that investment in transportation infrastructure—especially heavy urban rail, light rail, and rapid bus transit—can bring measurable increases in property values in surrounding areas. As demonstrated by numerous examples from Europe, North America, and East Asia, the increase in property values is manifested as positive impacts on residential property prices, office rents and retailing, number of shoppers in city centres, retail structures, parking requirements, and other building and development patterns that result from urban metro systems.

Several value capture (VC) tools are currently available. Tax increment financing (TIF) and special assessments are the two most common VC approaches. Used extensively in the U.S., TIF allows cities to create special redevelopment districts (e.g., transportation reinvestment zone) and make public improvements in those areas to spur further development. Using TIF, cities can capture value by earmarking any increase in property tax revenues over the “base” attributable to new developments into an escrow account separate from general fund revenues. These revenues can be used to retire existing infrastructure debts or provide improvements associated with the new development. These revenues can also be further leveraged to secure new debt by using them as a pledge to issue bonds. In addition to property tax, potential increases in local sales and income tax revenues can be also used for TIF value capture.

Funding Category	Representative Funding Instrument	One time or Long-Term	Description	Sector Application
General	Income Tax	LT	National, state/provincial, and/or local income taxes can be used by cities as general fund appropriations for infrastructure use	Various
	Sales Tax	LT	Cities can be authorized for local option sales tax dedicated to specific infrastructure projects; requires voter approval	Various
	Property Tax	LT	Property tax is cities' primary tool for obtaining infrastructure related tax revenues, including value capture approach	Various
Infra-structure Specific	Motor Fuel Tax	LT	Per gallon excise tax levied on motor fuels collected at national, state/provincial, and local levels; administered through escrow account	Transport
	Vehicle Fees	LT	Vehicle registration fee levied as a flat fee, by weight, by age, and/or by value generally collected at state/provincial or local levels	Transport
	Vehicle-Mile-Traveled (VMT)	LT	Mileage-based fees levied either as a flat or variable fee; tied more to wear-&-tear compared to per gallon fuel tax	Transport
Value Capture	Tax Increment Financing (TIF)	LT	Income, property, or sales tax increments from infrastructure improvements into a separate escrow account to retire existing debt, fund improvements, or use as a pledge to secure a new debt	Transit/Housing/Urban Dev.
	Special Assessments	LT	Property tax increase applied only to specific districts that benefit from infrastructure investments	Roads/Public Transit
	Land Value Tax	LT	Tax assessed on land value rather than property value (e.g., building); better incentive for development than property tax	Various
	Betterment Tax	LT	Benefit assessment or betterment levy imposed on beneficiaries of infrastructure investments	Water/Sewer/Transport
	Joint Developments	LT	Cost sharing between public operator (e.g., rail transit) and private developer; both benefit from property value increases	Rail/Public Transit
Lease or Sale	Land Lease or Sale	OT/LT	Publicly-owned land with enhanced value can be leased or sold with proceeds that can be reinvested into infrastructure	Various
	Air Rights Lease or Sale	OT/LT	Air rights above/below the permitted land use (e.g., increased FAR) can be leased or sold as monetized development rights	Various
Developer Exaction	Impact Fees	OT	Impact fees on developers to fund additional service capacity; can be conditioned on project approval	Roads/Safety/Schools
	Negotiated Exactions	OT	Developers donate land or build facilities for public use as condition for development approval	Sidewalk/Park & Open Space
	Tap Fees	OT	Utility connection fees on developers to recover cost of integrating new development with existing infrastructure	Water/Sewage
	Linkage Fees	OT	Fees on developers for secondary effects, e.g., traffic increases	Road/Housing
Utility Surcharge	Public Benefit Funds (PBF)	LT	Funds are collected either through a small surcharge on electric bills or through contributions from utilities	Renewable Energy/R&D

Figure 9: Tax Options for ULBs³¹

³¹ Handbook on Urban Infrastructure Finance-Julie Kim, 2016

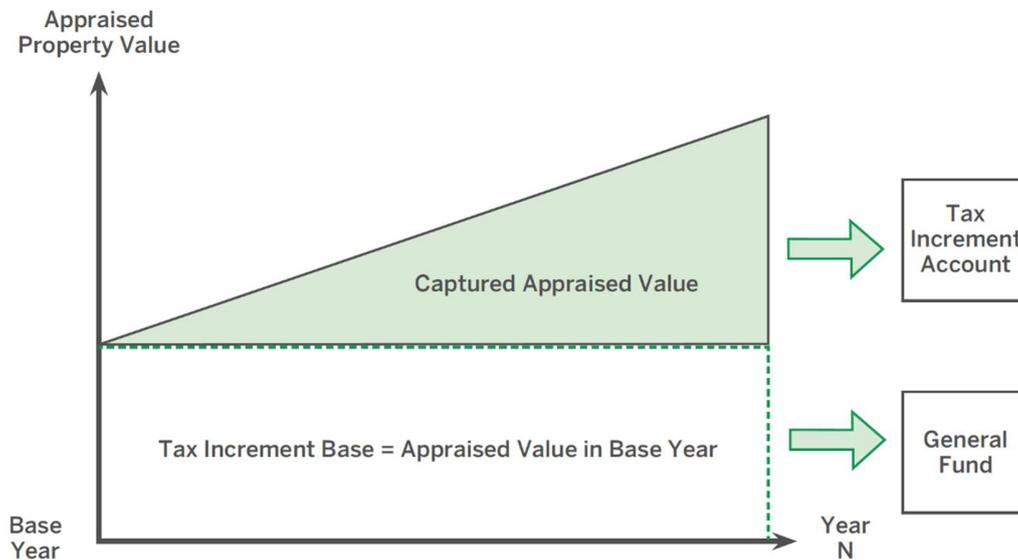


Figure 10: TIF Value Capture Mechanisms³²

Tax increment financing is an alluring tool. TIF districts grow much faster than other areas in their host municipalities. The issues to be considered when deploying TIF are:

- Whether the targeting causes the growth or merely signals that growth is coming and
- Whether the growth in the targeted area comes at the expense of other parts of the same municipality.

Some issues to be kept in mind when considering TIF are as follows:

- States should track and monitor the use of TIF;
- States should allow local governments to opt out of TIF;
- States should review their TIF requirements to determine their effectiveness;
- Local governments should communicate TIF use, revenues, and expenditures and

Special Assessments

Special assessments are based on creating special tax districts to finance infrastructure improvements. Unlike TIF where there is no change in tax rate, special assessments levy a tax surcharge on businesses and property owners within the designated district who are the beneficiaries of the improvements. The surcharge can be used to finance bonds that pay for the improvements. Where there is shortfall especially in early years, the debt service on the bonds can sometimes be supported by financial support from the national and state/provincial governments. This approach is fast becoming a critical tool for many

³² Handbook on Urban Infrastructure Finance-Julie Kim, 2016

cities to finance their urban public transit systems including, for example, London’s new CrossRail line.

Land value and betterment tax systems represent a more generalized value capture taxing concept. Land value tax (LVT), sometimes proposed as a better alternative to property tax, is an assessment based on land value rather than property value that includes buildings and other property improvements on the land. Property tax is considered inefficient because it taxes the value of improvements and penalizes development whereas LVT provides an incentive for development. Betterment tax, also referred to as benefit assessment or betterment levy, is a one-time assessment imposed on the beneficiary of the land value gain resulting from infrastructure improvements. Compared to the other VC tools, betterment tax allows early capture of the value created from the development through a one-time assessment upfront.

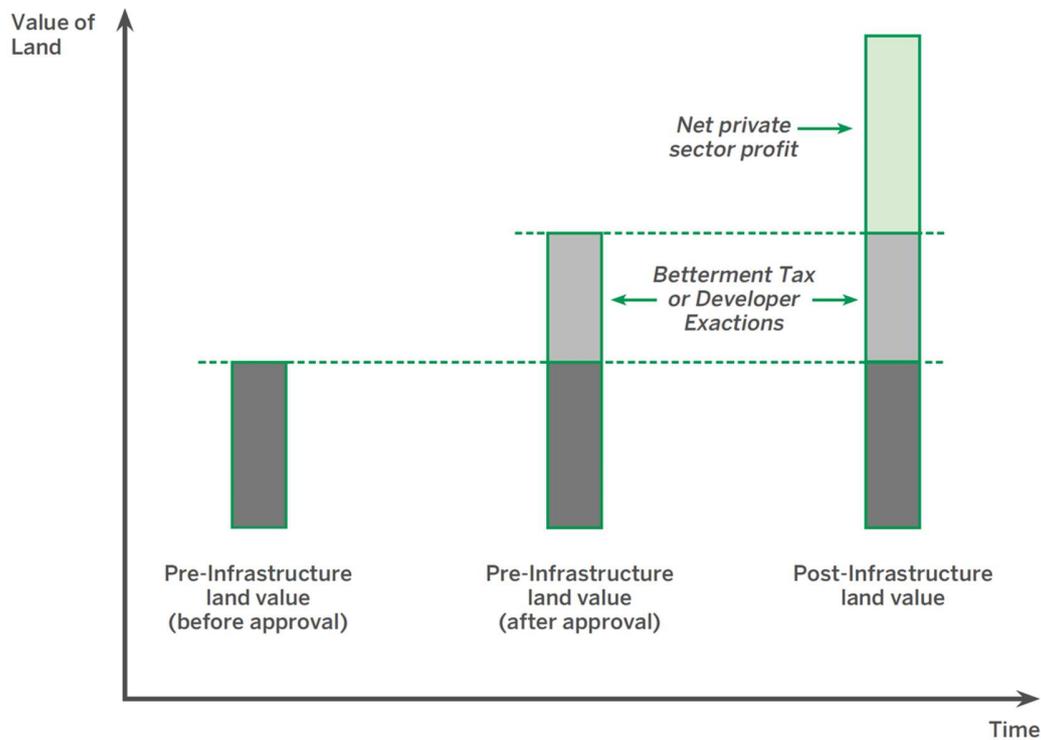


Figure 11: One-Time Value Capture (Betterment Tax and Developer Execution)³³

The joint development approach is a form of public-private partnership that has been used most successfully by Hong Kong’s Mass Transit Railway Corporation (MTR). At no cost to the public purse, the funding mechanism here is through a cost-sharing arrangement between the public operator and private developer to pay for initial infrastructure improvements—a riskier part of investments that is critical for property developments,

³³ Handbook on Urban Infrastructure Finance-Julie Kim, 2016

but that has resided traditionally with the public sector. Ultimately, private developers benefit from better accessibility, more customers, and increase in property value and the public operator benefits from the sharing of construction costs while securing increased patronage for their transit system.

Long-term lease or sale of land or air rights is another way for cities to capture value. One-time proceeds can be obtained by selling publicly owned land whose value has been enhanced by infrastructure investments. The same land can also be leased for revenues over a long term. Both one-time proceeds or long-term lease revenues can be used as funding sources for infrastructure. Likewise, air rights can be sold or leased as development rights. These rights can either be above the current land control (e.g., increased floor area ratios of buildings) or below the infrastructure improvements (e.g., shop area below a rail station). In addition to the proceeds from the sale or lease of the development rights, additional revenue (e.g., property tax) can be captured from the increase in land value that result from these further developments.

Developer exactions are one-time burdens or requirements that cities can place on a developer to cover the costs of infrastructure improvements as a condition for development approval. Unlike value captures that capitalize on the positive impact of increase in property value, in developer exactions, cities capitalize on negative impacts associated with developments. Like value capture, however, the incentive for the developer to pay exactions come from the potential increase in the property value. Like the betterment tax, developer exactions also force upfront payment and enable cities to capture early on the value created from the use of the exactions (Figure 11).

Used primarily for water and sewer facilities, tap fees are utility connection fees used to recover the cost of integrating new development into existing infrastructure or fund other infrastructure improvements. For example, the fees can cover the cost of tying water meters for new connections to existing lines or sewer line inspections. Linkage fees, usually associated with large-scale commercial, industrial, and multi-family housing developments, are designed to cover secondary effects of development, e.g., traffic increase resulting from housing developments or lack of affordable housing for workers from commercial developments.

3.2.2 User Charges

User charges are fees that are paid by users (e.g., individuals, businesses) that use infrastructure facilities and services provided by cities that are distinct from taxes. Depending on the infrastructure sector, user charges can take many different forms. In the utility sector, for example, user charges are the monthly bills people and businesses pay for their electricity, TV, telephone, and water. In transportation, user charges can be manifested variously in airline landing fees, airport passenger facility charges (PFC), parking fees, highway tolls, fares paid for bus or rail public transit, or shipping service charges paid by shipping lines or terminal operators for ports. For the social infrastructure sector, user charges may be limited to, for example, entrance fees for public museums or fees patients pay for health care services in public clinics.

Compared to taxes, it is generally easier to tie user charges directly to the cost of producing infrastructure services and avoid perpetual funding shortages. They are thus more sustainable funding sources in the long run. Utility sectors—i.e., electricity, telecommunications, water—are more amenable to user charges because it is easier to assign specific benefits and costs to specific users. Where the degree of externality is greater, such as in major highways, user charges are more difficult to implement, except for situations like toll roads where the effective user area can be defined with clear physical boundaries. Ironically, if political sensitivity about user charges can be overcome, the water sector can deploy a more sustainable financial model compared to the transportation sector.

In most utility sectors, user charge regimes are well established through a public regulator-private operator model. Using various pricing strategies, constant refinements can be made to make funding more sustainable in the long run

Two notable shifts in the infrastructure industry, may trigger a more user charge-friendly funding regime in the future. First, as the funding responsibility shifts from federal to state/provincial and local governments and as infrastructure facility provisions become more localized, it could become easier to assign specific benefits to specific users. For example, in the case of toll roads, because toll facilities are by nature local, public acceptance of tolling can vary widely by location and national tolling policy can have limited local impact. Decisions about tolling thus could be made more effectively at the local level. Second, as the role of private sector capital continues to feature prominently, it is important to recognize that the user charge funding regime is the preferred and more sustainable model in the long run to engage the private sector more effectively.

User charges can attract PPP and other private sector financing opportunities that are innovative and self-sustaining. The private sector is better positioned for a user charge funding regime because their incentives are better aligned to achieve higher operational efficiency that specifically cater to user needs. Finally, user charges and rate increases implemented by the private sector are sometimes less likely to be subject to political pressures because they are viewed as a legitimate business undertaking rather than having public service goals.

There can be significant political obstacles and public hostility surrounding user charges. The public hostility is built around two main concerns: (a) perception of double taxation where users pay both taxes and user charges for infrastructure improvements and (b) inadequate provision for charge-free facilities for those who are unwilling or cannot pay the user charges. When the private sector gets involved, there is concern about the need to pay back the sunken investments already made by the public sector on the existing facilities. There is also a community of stakeholders, e.g., labour unions, who are negatively impacted or whose interests are misaligned with private sector involvement and a user charge regime. It is essential to overcome these political challenges associated with user charges.

The challenge is to reach a proper balance between these two sources (taxation and user charges)—with the broad view that, effectively, taxes addresses the broad social equity issues and user charges addresses the efficiency and financial sustainability issues.

3.2.3 Revenues from Brownfield Recycling

Brownfield recycling is essentially the leveraging of existing public infrastructure assets by leasing or selling them to the private sector and using the proceeds therefrom to fund new infrastructure projects. Paired with the right set of regulations, this approach provides as close to free, unencumbered funding as possible with no repayment obligations.

Since there is a limit to how much taxpayers and users can take on to pay for infrastructure, Brownfield recycling is one of a few options that begins to address the sheer magnitude of the funding gap at hand. With proper asset valuation, brownfield recycling could potentially present one way to recover the sunken public sector investments. Currently, several converging circumstances are placing brownfield recycling in a favourable light:

- There is unprecedented private sector interest for infrastructure assets with more money than could be handled by the current project pipeline;
- Institutional investors—with over \$100 trillion of assets under management are continuing to increase their infrastructure asset allocations and
- Recent infrastructure brownfield transactions indicate a strong seller's market climate with valuations consistently exceeding expectations.

Infrastructure Australia, a federal government agency responsible for planning and coordinating infrastructure projects across Australia, recently developed a set of criteria to identify several infrastructure assets classes appropriate for brownfield recycling. These criteria, listed below, serve as useful guidelines for cities interested in exploring brownfield recycling options with their national and state/provincial governments:

- Appropriate asset classes include those in energy, water, and transport sectors;
- Assets must be owned, or partly owned, by federal, state or local governments;
- Assets must apply or have the potential to apply a user-pay framework, or already have a non-government earnings stream with the potential to cover operating costs;
- Assets have limited or defined public policy benefits, which can be obtained by way of regulation, sale conditions, or community service obligations.

Further, the asset classes were designated according to the following categories for potential implementation and phasing considerations:

- Those that already have competitive markets where the remaining publicly owned assets are suitable candidates for transfer to the private sector;
- Those that are not competitive or have significant non-competitive segments, but in which current regulatory frameworks apply, making them suitable candidates for transfer to the private sector;
- Those that are not competitive or have significant non-competitive segments and where the regulatory framework is not yet suitably developed to allow privatization, but where this can be achieved with structural and/or regulatory changes;

- Those that are unsuitable for transfer to the private sector, either because of significant structural or regulatory impediments, or sectors that are unlikely to yield upfront revenues because they do not have sufficient non-government earnings and/or they carry a very large community service obligation component.

In addition to pricing, governments need to be mindful of protecting the public's interest on a range of issues such as maintenance of service quality standards, provision for a range of non-commercial services which may have been undertaken under public sector ownership, environmental protection, public safety and noise management. The suitability of these assets for brownfield recycling would vary depending on different governments, their regulatory and governance structures, and the overall commitment to user-pay principles. Brownfield recycling should also only occur where the proceeds from the transactions exceed the retention value of the asset.

The recent redevelopment of the over 50 cotton mills in central Mumbai is a good example of a successful brownfield recycling wherein many abandoned mill lands were revitalized / retrofitted for contemporary utilitarian aspects.

4. BUILDING CAPACITY

4.1. SKILLS, COMPETENCIES AND TOOLS FOR SUSTAINABLE URBAN INFRASTRUCTURE DEVELOPMENT

In India, population growth and the march towards urbanisation is putting pressure on urban infrastructure and demanding the ULBs to be financially self-sustaining. More specifically, the demand for growth and improvement in urban services needs financing hitherto met by ULB revenues, bank loans and central / state aid, grants and subsidies. Now, this calls for the ability of ULBs to raise capital through debt and equity or through PPP structures and divestment. The need for developing a model of ULB that is contemporary and sustainable is pressing.

The interviews conducted with IFIs clearly indicated that the Indian ULBs lack the necessary skill sets to develop bankable projects that can attract the interest of the investor. While part of the skills that are required to raise such capital are supported by external project consultants and state departmental staff, the organizational capability both in terms of governance, management, technology and finance has to be met internally. In the immediate term, capacity building has to be conducted for the ULB stakeholders, that includes municipal employees, councillors and citizens while for the longer term, recruitment of appropriate staff can be planned for.

In terms of the need for capacity building, the most critical group of stakeholders are the municipal employees, in both technical, operational and management cadres who will deliver municipal services and operate and manage the ULB. A second group includes the elected councillors and local citizens.

ULBs are encouraged to approach MDBs / IFIs at an early stage in the development of their investment projects seeking guidance on eligibility and approach. Generally, MDBs and IFIs are available to provide some guidance on the approach (e.g. on the need for multi-modal considerations on public transport, or environmental standards on water projects) which may differ from municipal, state or national standards.

Finance for urban infrastructure has devolved from securing state fiscal support and meeting projects costs out of revenues to seeking long term credit through bonds, developing equity structures including crowdfunding, using IFI's for loans and equity, developing PPP structures and also divestment. The financial markets are also complex and will need credit rating of the ULBs which is an organizational process so that access is created.

The larger corporations, such as Ahmedabad and Bengaluru have been successful in floating bond issues: however, this is still a challenge for the other ULBs. While project finance is a specialist area that can be performed through state resources, engagement of consultants, it will necessitate that the ULB meets the credit ratings and will be able to perform so that repayment is viable. A ULB with the appropriate leadership, organization assets in technical, financial, operational and organizational staff will be able to plan and implement projects, ensure revenue collection, organize and provide transparent procurement and project development and management skills and generate financial and operational data. This is the core of a viable organization especially for an ULB. At present, cadre development in specialised engineering streams has been using staff from state departments, while for accessing the capital markets and funds, a holistic capacity building to develop a sustainable modern ULB is critical.

4.2. BUILDING CAPACITY TO UTILIZE FINANCING AND FUNDING TOOLS

Government of India through the Ministry of Housing & Urban Affairs has a number of urban infrastructure development programs notably Atal Mission For Rejuvenation And Urban Transformation (AMRUT), Heritage City Development and Augmentation Yojana (HRIDAY), Scheme for Satellite Towns around seven megacities, Smart Cities, Pradhan Mantri Awas Yojana- Housing for All (Urban) that provide for development of organizational skills and project specific skills in ULBs.

IFI's and development agencies initiatives include the UNDP – GOI Capacity Building for Decentralized Urban Governance in November 2006 - December 2007 in 4 states and 16 ULBs to develop skills of ULBs in accounting reforms, property tax reforms and city development plans aligned to the JNNURM locations. More recently the World Bank assisted Capacity Building for Urban Development (CBUD) Project started during the closing stages of JNNURM in 2012 to enhance capacity building and institutional strengthening of selected ULBs to implement urban reforms mandated under JNNURM and the Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT).

In addition to all of these, the Ministry of Finance has developed a complete toolkit for PPP projects that includes models for development, evaluation kits, model concession agreements and access to empanelled consultants for transaction advisory that includes preparing the detailed project report, investment memorandum, conducting the meetings between government and private investors, bid process management and deal closure. The Ministry has a scheme for Viability Gap Funding (VGF) and also supports ULBs by providing bridge loans for engaging Transaction Advisors for project development activities under India Infrastructure Project Development Fund.

Ministry of Housing and Urban Affairs, Govt. of India has set up Regional Centres for Urban and Environmental Studies (RCUES) at Mumbai, Lucknow & Hyderabad. RCUES train elected and official functionaries of ULBs in urban governance and provide exposure to contemporary issues in ULBs.



The Centre for Urban Studies at IIPA was set up in New Delhi in 1968 to undertake urban policy research, technical advisory services and building capacity of senior and middle level officials and elected representatives of urban local bodies.

National Institute of Urban Affairs (NIUA) is a premier institute for research, training and information dissemination in urban development and management. Other institutions include All India Institute of Local Self-Government that works on research and training in municipal administration through its regional offices and centres. The Administrative Training Institute at the State level disseminates knowledge on good governance specifically in training in effective human resource management and financial management to ULBs and state level functionaries.

5. PREPARING FOR AND RESPONDING TO EMERGENCIES

The global pandemic (COVID-19) exposed the fragility of our cities and the need to have swift emergency relief measures in place to avoid severe health, economic and social catastrophes. This is especially relevant in a diverse and vastly populated country such as India. During the COVID-19 crisis, the global community has responded by providing governments and other stakeholders access to capital to manage the crisis, address social needs and keep the wheels of economy turning. This chapter should not only be viewed when dealing from a current exigency but also when preparing for unforeseen eventualities (e.g., natural disasters, economic downturns, terrorist attacks) by using some of the instruments mentioned here to provide the necessary infrastructure and services.

Regarding COVID-19, the Government of India (GoI) has announced a stimulus package valued at approximately 0.8 percent of GDP. The key elements of the package are: in-kind (food; cooking gas) and cash transfers to lower-income households; insurance coverage for workers in the healthcare sector; and wage support to low-wage workers (in some cases for those still working, and in other cases by easing the criteria for receiving benefits in the event of job loss). These measures are in addition to an earlier commitment of 150 billion rupees (2 billion US \$ - about 0.1 percent of GDP) towards health infrastructure, including for testing facilities for COVID-19, personal protective equipment, isolation beds, Intensive Care Unit beds and ventilators. Several measures to ease the tax compliance burden across a range of sectors have also been announced, including postponing some tax-filing and other compliance deadlines. Numerous state governments have also announced measures to support the health and wellbeing of lower-income households, primarily in the form of direct transfers (free food rations and cash transfers)—the magnitude of these measures varies by state, but on aggregate measures thus far amount to approximately 0.2 percent of India's GDP.

The support from global institutions is intended to cover a variety of needs in a crisis and includes not only loans and grants but also capacity building and technical assistance programmes.

The Asian Development Bank unveiled a \$1.5 billion Covid-19 package for India in April 2020 and is in discussions with the government on further aid for specific sectors. It is also in discussions with the country's private sector to provide support where needed. The multilateral lender has begun consultations with India on providing support for micro, small and medium enterprises (MSMEs) and infrastructure projects through credit guarantees.



Figure 12: Multilateral banks are providing diverse instruments to tackle global challenges

The World Bank Group (WBG) is moving quickly to provide fast, flexible responses to help developing countries strengthen their pandemic response and health care systems. Over the next 15 months from April 2020, the World Bank Group will be providing up to US\$160 billion in financing tailored to the health, economic and social shocks countries are facing, including over US\$ 50 billion of International Development Association (IDA)

resources on grant and highly concessional terms. In addition to ongoing health support, operations will emphasize social protection to get cash into people’s hands, poverty alleviation, and policy-based financing. The WBG has launched its first set of emergency support operations focusing on:

- Preventing and limiting local transmission, through laboratory equipment, improved surveillance systems, and training of front-line responders.
- Goods and services such as gloves, masks, and portable ventilators.
- Building or expanding clinical care facilities, such as refurbishing intensive care units or inpatient facilities in hospitals and preparing quarantine facilities.
- Building systems for real-time community-based disease surveillance and through proactive, evidence-based citizen engagement.
- Strengthening collaboration for research and response to facilitate the development of vaccines, therapeutics, and other measures.

Countries are accessing support through a dedicated, fast-track facility. In addition, the World Bank is working worldwide to redeploy existing resources in World Bank financed projects, for example through restructuring and use of emergency components of existing projects (CERCs).

The World Bank’s Board of Executive Directors approved a fast-track \$1 billion India COVID-19 Emergency Response and Health Systems Preparedness Project to help India prevent, detect, and respond to the COVID-19 pandemic and strengthen its public health preparedness. This is the largest ever health sector support from the Bank to India. This new support will cover all states and Union Territories across India and address the needs of infected people, at-risk populations, medical and emergency personnel and service providers, medical and testing facilities, and national and animal health agencies. The project is financed from the International Bank for Reconstruction and Development (IBRD) in the amount of \$1 billion, of which \$350 million is provided through the World Bank Group’s COVID-19 Fast-Track Facility. It will be managed by the National Health Mission (NHM), the National Center for Disease Control (NCDC) and the Indian Council of Medical Research (ICMR) under the Ministry of Health and Family Welfare.

The project will enable the Government of India (GOI) to scale-up efforts to limit human-to-human transmission, including reducing local transmission of cases and containing the epidemic from progressing further. In parallel, interventions to strengthen the health system will be rolled out to improve the country’s capacity to respond to the COVID-19 epidemic and be better prepared to respond to emerging disease outbreaks, including transmission between humans and animals.

Procurement of testing kits; setting up of new isolation wards — including turning hospital beds into intensive care unit beds; infection prevention and control; and purchase of personal protective equipment, ventilators, and medicines, particularly in district hospitals and designated infectious disease hospitals will be scaled up under the project.

To support the activities and organisation of the private sector in the crisis and shoring their economic recovery, the World Bank’s private sector arm – International Finance

Corporation – is working to cushion the economic impact through financing that will help companies continue to operate and preserve jobs. This funding is important to micro, small and medium-sized enterprises, which are especially vulnerable to global shocks. The IFC’s response will:

- Focus on client banking institutions, so they can continue to offer trade financing, working-capital support and medium-term financing to private companies impacted by the pandemic.
- Help existing clients in economic sectors directly affected by the pandemic—such as tourism and manufacturing—to continue to pay their bills and employees.

It will also help address potential significant negative externalities in the event of a widespread COVID-19 outbreak, including comprehensive health awareness and behaviour change campaigns on hygiene practices, wearing masks, social distancing, and mental health and psychological services for vulnerable communities.

The EIB Group has announced details of a comprehensive response to the coronavirus pandemic outside the EU that will provide up to €5.2 billion in the coming months³⁴. This financing is part of the Team Europe response and supported by guarantees from the EU budget. It will both strengthen urgent health investment and accelerate long-standing support for private sector investment that reflects financing needs in more than 100 countries around the world.

The immediate fast-tracked support will help to sustain jobs and livelihoods in sectors most threatened by the economic and social impacts of the coronavirus and will be followed by additional long-term health and business financing as needed. This initiative focuses on:

- Accelerated financing and targeted technical assistance for partners in 100 countries.
- Short-term support for health and business investment in Africa, Eastern and Southern Neighbourhood Countries, Western Balkans, Asia and Latin America.
- Increased backing for business impacted by the pandemic.

³⁴ <https://www.eib.org/en/about/initiatives/covid-19-response/index.htm>

6. FURTHER INFORMATION

As a guide to the key policy and decision makers this chapter of the Manual intends to highlight some of the key agencies financing and funding sustainable and climate resilient urban infrastructure projects.

Adaptation Fund

The Adaptation Fund is an international fund that finances projects and programs aimed at helping developing countries to adapt to the harmful effects of climate change. It is set up under the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC).

The Adaptation Fund's direct access modality is the first of its kind to be fully operational among climate funds. Through direct access, accredited National Implementing Entities (NIEs) can directly access financing and manage all aspects of climate adaptation and resilience projects, from design through implementation and monitoring. Once an entity passes the Fund's rigorous accreditation review, it may apply for project funding. NABARD is the NIE for India and is responsible for project & programme management, including financial, monitoring and reporting and for receiving funding in performance-based tranches.

The Fund's readiness programme is helping implementing entities:

- Efficiently navigate the accreditation process;
- Strengthen their capacity to design and implement climate adaptation projects and programmes;
- Build capacity and share lessons through workshops, webinars and readiness grants, including south-south cooperation, and technical assistance.

Keys to accreditation are:

- Frequent interaction between applicant and the fund's accreditation panel and
- Visits to applicant by reviewers may help overcome documentation gaps.

Financing for NIEs includes adaptation and resilience projects tailored to local needs, ranging from sustainably managing coasts, inland agricultural communities and areas needing improved land and water management or disaster planning across Africa, Asia and the Pacific, Latin America and the Caribbean, and Eastern Europe.

Benefits of Direct Access:

- Funds projects directly managed and led by countries;
- Elevates issues relating to climate change and adaptation to the national level;
- Improves intragovernmental collaboration and amplifies stakeholder voices;
- Fosters transparency, inclusiveness and competition in project formulation;
- Sustains institutional knowledge and enhances internal management;
- Empowers developing countries to build national adaptive capacities.

The National Adaptation Fund for Climate Change (NAFCC) was established in August, 2015 to meet the cost of adaptation to climate change for the State and Union Territories of India that are particularly vulnerable to the adverse effects of climate change. The Government of India has set up a budget provision of Rs.350 crores for the year 2015-16 and 2016-17, with an estimated requirement of Rs. 181.5 crores for financial year 2017-18 for NAFCC. The projects under NAFCC prioritizes the needs that builds climate resilience in the areas identified under the SAPCC (State Action Plan on Climate Change) and the relevant Missions under NAPCC (National Action Plan on Climate Change).

Climate Investment Fund

The Climate Investment Funds (CIF) is one of the world's largest and most ambitious climate finance mechanisms. Founded in 2008, it represents one of the first global efforts to invest in a dedicated climate finance vehicle. The CIF emerged from recognition by world leaders that climate change and development are inextricably intertwined. The CIF's creation also recognized a need to fill a gap in the international climate finance architecture—to deliver climate-smart investment at scale. The CIF supports developing and emerging economies in shifting to low carbon and climate resilient development.

The CIF consists of the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF). CTF supports renewable energy, low carbon technologies, energy efficiency, and clean transport in middle-income countries. SCF finances new approaches or scales up activities through the Forest Investment Program, the Pilot Program for Climate Resilience and the Scaling Up Renewable Energy in low-income countries. Program resources are channelled through the Multilateral Development Banks (MDBs) that work with national governments, private sector project sponsors, financial institutions, development partners, and other stakeholders. The MDBs also help prepare country-led investment plans, and then implement the individual projects in those plans.

The CIF programmatic approach to investment planning and implementation brings strategic value to CIF recipient countries. Working through a transparent, country-led process, the CIF fosters trust and collaboration among government ministries, civil society, indigenous peoples, private sector, and the MDBs that implement CIF funding. Together they translate Nationally Determined Contributions and other national development and climate strategies into an actionable CIF investment plan. Rather than one-off projects, the plan comprises long-term, sequenced investments that mutually reinforce each other and link to other critical activities, such as policy and regulatory reform and capacity building. Under national government leadership, CIF stakeholders continue to work together to implement the plan, continually assessing progress and sharing lessons learned along the way.

Government of India (GOI) has been actively pursuing a range of initiatives to support its policy objective of promoting environmentally sustainable growth. Several of these are currently at a stage where they need to be supported by investments on the ground. The overall investment quantum is large. Several alternate funding avenues are being considered in this regard. The initial investments made to support these programs will be critical in catalysing the respective programs and have significant impact on the segment that the respective programs seek to achieve. A strategy for financing climate change will also

need to be anchored in the National Action Plan on Climate Change and the domestic development strategy. The investments will have to be made, therefore, through a long term and comprehensive Plan for both mitigation as well as adaptation purposes across several sectors. In this Investment Plan, the Government of India proposes to obtain an initial financing from the Clean Technology Fund (CTF) to support a set of projects and initiatives that have been identified for their critical impact on social and economic development with significant co-benefits for climate change. A subsequent phase of the Investment Plan will include substantial investments in lower emission sustainable development initiatives covering various sectors and applications.

The majority of India's \$775 million CTF investment plan supports the development of over 3 GW of new installed solar power capacity and associated transmission infrastructure. The fund is managed by the Ministry of Environment, Forest and Climate Change.

Rationale for selected sectors for CTF Financing

As has been articulated above, sustainable expansion of electricity remains the primary challenge for Government of India. Inclusive growth cannot happen without rapid expansion of electricity supply for the entire population of the country. While the initial target of 2012 for this is likely to be missed, the need for attaining this in a reasonable time scale cannot be overstated. Government of India thus places tremendous emphasis on sustainable supply growth initiatives that have transformative potential for CTF financing in Phase 1. Four specific supply side initiatives are being proposed under Phase 1 financing: (a) Himachal Pradesh: Development Policy Loan on Environmental Sustainability and Climate Change (b) Support for the National Mission for Enhanced Energy Efficiency (NMEEE) (c) Partial Risk Guarantee for Energy Efficiency Technologies (d) Support to the Jawaharlal Nehru National Solar Mission (JNNSM)

Two of these [(a) and (d)] have potential transformative impact on the supply side, while the other two address the critical gaps in the demand side and usher a framework for promoting energy efficiency on an accelerated scale so as to significantly reduce the energy intensity of India's economic growth.

DANIDA Business Finance (DBF)

Danida Business Finance (DBF) offers financing on favourable terms to sustainable infrastructure projects in developing countries in sectors such as transportation, energy, water supply and sanitation. Since 1993 DBF has contributed to projects with high sustainable growth in 29 developing countries. The overall goal of DBF is to secure financing for large, primarily public, infrastructure projects which would not otherwise have obtained financing on commercial terms. On 1 September 2017 IFU took over the administration of DBF from the Ministry of Foreign Affairs. The objective is to improve the interaction between IFU and DBF and thereby increase Denmark's contribution to larger infrastructure projects in developing countries.

Danida Business Finance (DBF) can provide access to finance and can leverage finance for sustainable infrastructure projects in developing countries based on the countries' development strategies, delivering measurable results toward the SDGs that create growth and employment in developing countries. The projects must contribute to



sustainable development in the recipient country in line with the UN Sustainable Development Goals (SDG). A typical loan has 10 years' maturity and is issued in USD or EUR. The DBF subsidy covers:

- Interest in the whole duration of the loan;
- Export credit premium and other financial costs;
- Cash grant to reduce the principal of the loan (in case interest, premium and financial costs do not constitute 35% or 50% subsidy level, a cash grant is included in the subsidy to reach the minimum levels required by the OECD).

The buyer/borrower repays the loan in equal, semi-annual instalments, normally starting six months after the commissioning of the project. The borrower will pay only a commitment and a management fee. Only projects that are commercially non-viable can be financed; that is projects that do not generate enough profit to service a loan on commercial terms.

There are two approaches under DBF:

- DBF Classic: Tender limited to Danish companies where DBF support has been approved prior to tender;
- DBF Fast Track: International tender where DBF can provide support in case a Danish company is the best evaluated bidder (DBF support approved after tender evaluation).

Danida Business Finance contributes to sustainable and transformational change in developing countries in line with the Sustainable Development Goals by softening the terms of commercial loans for investments primarily in public infrastructure. The below core principles form the foundation of DBF project identification and selection:

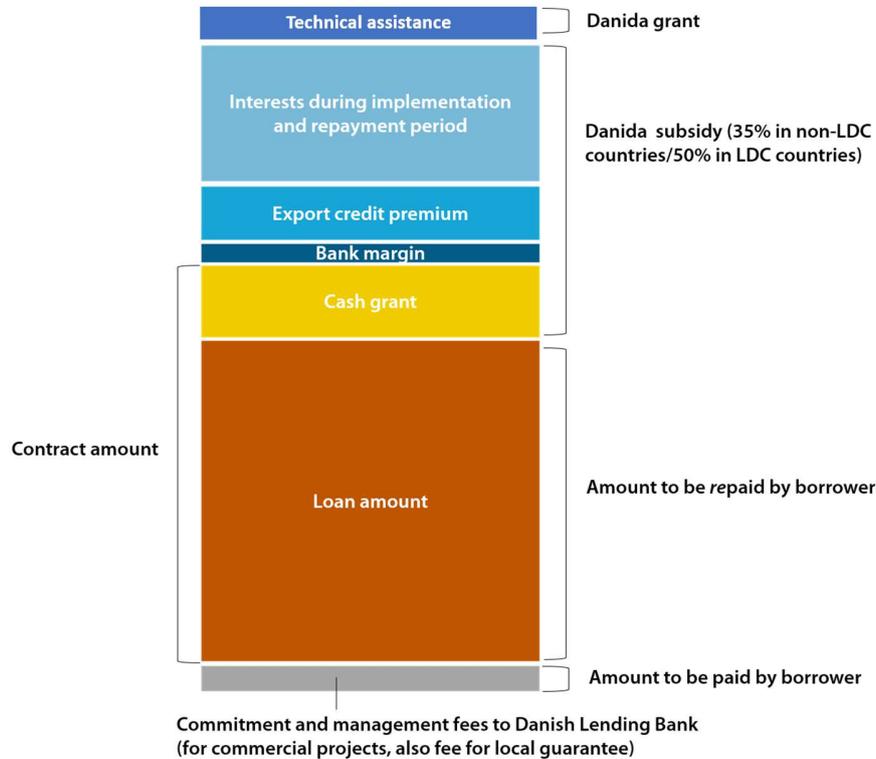


Figure 13: Danida Business Finance

- DBF is available in developing countries with GNI per capita below USD 4,035 and with a Danish representation;
- Projects must address at least one of the UN Sustainable Development Goals;
- Projects in sector with Danish core competencies will be prioritized;
- All projects must be tendered. If there are sufficient Danish suppliers, the bidding will be limited to those;
- The minimum contract amount to be financed is DKK 100 million;
- The Ministry of Finance or a solid bank in the recipient country is required to act as borrower/guarantor;
- Projects will be assessed on sustainability criteria, including IFC performance standards and UN Guiding Principles for Business and Human Rights;
- Projects should be based on local demands and needs and be reflected in national development strategy and sector plans.

DBF finances up to DKK 500 million (approx. INR 500 crores) and is managed by IFU Denmark's India office.



Green Climate Fund

The Green Climate Fund (GCF) is a new global fund created to support the efforts of developing countries to respond to the challenge of climate change. GCF helps developing countries limit or reduce their greenhouse gas (GHG) emissions and adapt to climate change. It seeks to promote a paradigm shift to low-emission and climate-resilient development, taking into account the needs of nations that are particularly vulnerable to climate change impacts. It was set up by the 194 countries who are parties to the United Nations Framework Convention on Climate Change (UNFCCC) in 2010, as part of the Convention's financial mechanism. It aims to deliver equal amounts of funding to mitigation and adaptation while being guided by the Convention's principles and provisions.

GCF launched its initial resource mobilisation in 2014, and rapidly gathered pledges worth USD 10.3 billion. These funds come mainly from developed countries, but also from some developing countries, regions, and one city (Paris). GCF's activities are aligned with the priorities of developing countries through the principle of country ownership, and the Fund has established a direct access modality so that national and sub-national organisations can receive funding directly, rather than only via international intermediaries. The Fund pays particular attention to the needs of societies that are highly vulnerable to the effects of climate change, in particular Least Developed Countries (LDCs), Small Island Developing States (SIDS), and African States. GCF aims to catalyse a flow of climate finance to invest in low-emission and climate-resilient development, driving a paradigm shift in the global response to climate change. The Fund's investments can be in the form of grants, loans, equity or guarantees.

KfW

KfW is the German state-owned development bank headquartered in Frankfurt Germany. It has been present in India for the last 60 years and currently has an annual budget of € 1 Bn per annum for India. The focus is urban development which includes Utility infrastructure (water, sewage, sanitation) and Mobility. KfW provides subsidised Int loans, ODA + promotional loans and technical grants through the GOI. When providing capital KfW considers projects from a holistic point of view and can consider proposals for feasibility studies etc. They have a minimum ticket size of € 50 million. A city can apply through the state, line ministry and then to the MoF (DEA) for financial support through the Project Preparation Report (PPR) facility.



GIZ

For over 60 years, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has been working jointly with partners in India for sustainable economic, ecological, and social development. The thematic areas of GIZ in India are:

- Energy
- Environment, Climate Change and Biodiversity
- Sustainable Urban and Industrial Development
- Sustainable Economic Development

GIZ is currently working in Tamil Nadu, Orissa and Kerala on Local and Climate Action plans by addressing the areas of Sustainable Urban Development Solutions, Climate and Smart transportation. The GIZ office in New Delhi is coordinating all the activities in India

AfD

Agence Française de Développement has been active in India for nearly ten years and provides ODA loans to the GOI. Their minimum ticket size is € 50 MN. Under the current CITIIS program, AfD is working with NIUA, to support the development of sustainable and climate resilient urban solutions in 15 Indian cities.

AfD operates through loans in India, mostly to GOI and has financed “non bankable” projects such as public space upgrading, if the GOI is willing to borrow for such projects. They have an ongoing, dedicated technical cooperation program with Chandigarh, Nagpur and Puducherry under a bilateral MoU between France and India on urban development. The AfD office in New Delhi is coordinating all activities in India

EIB

European Investment Bank recently established its South Asia regional office in New Delhi and provides climate finance to viable projects. The projects that are evaluated on financial, economic, social and environmental sustainability. Further, the context of the project should consider the participation of the private sector such as developers etc. but not necessarily a commitment from them. It is crucial that the city has a robust master plan in place and the deemed project is well aligned to the master plan before approaching EIB.

EIB lending rates are generally more competitive with better credit rating, being non-profit and access to cheaper capital. EIB has a min ticket size of € 100 Mn in India, but partners with other Indian banks such as YES, ICICI, SBI etc. Through its partners, EIB may lend directly to cities provided they have a credible rating. The 6 key sectors in India are water, waste, energy, transportation, housing and smart communities.

7. CONCLUSION

This Manual focuses on the basic concepts underlying the myriad financing vehicles available today so that they are understood in proper context. These basic concepts are intended to help Indian ULBs better navigate the complex world of infrastructure financing.

In explaining the basic concepts, this Manual emphasized the important distinction between financing vs. funding. Infrastructure financing is raising the high upfront costs to build the infrastructure when and where needed by leveraging future revenue streams that can repay the upfront costs. Financing is the raising of this upfront capital to expedite the process. Funding represents the revenue streams in the future to repay the financing.

On the financing side, focusing on infrastructure assets in the public domain, this Manual provided two broad categories of financing: public sector vs. private sector financing (Chapter 2). Among others, the most prevalent financing vehicles available for cities for public and private sector financing, respectively, are municipal bonds and public-private partnerships PPPs.

Whether publicly or privately financed, the Manual emphasized the increasing and critical role of institutional investors in infrastructure financing with their patient and long-term capital. Further, the Manual also emphasized the importance of support from national/state governments, international financial institutions and development banks (so called IFIs), especially in providing credit enhancements and financial leveraging tools that help reduce financing costs for cities.

On the funding side, there is no free. Cities must rely on tax revenues and user charges as the two primary funding sources they can leverage to secure financing (Chapter 3). For tax revenues, value capture and developer exactions are two effective taxing approaches that can be used by cities. For many cities in the developed world, these two approaches are largely within their current taxing authority without requiring major tax reforms. Increasingly, tax revenues must be supplemented with user charges, especially for infrastructure assets in the public domain. User charges are a much more sustainable funding source and are the key to unlocking private capital. Better quality service, more service options catered to specific users, user vouchers, and automated payment collection systems are potential solutions that help incentivize users and their willingness to pay.

There is, however, a limit to how much taxpayers and users can take on to pay for infrastructure. This Manual presented brownfield recycling as a potential solution to addressing the daunting funding gap issue. Brownfield recycling is the leveraging and monetization of existing brownfield assets through long-term leases or asset sales that use the proceeds therefrom to fulfil infrastructure funding needs. This is one of a few options that begins to address the sheer magnitude of the funding gap and as close to unencumbered funding as possible without repayment obligations. Although brownfield recycling can sometimes be mired in political controversy, there is sufficient evidence to prove that wider public acceptance is possible if there is a clear mandate on the use of the proceeds

to reinvest in infrastructure, credible institutions such as public pensions are involved on the buyer side, and a clear regulatory regime is established to protect social objectives.

Infrastructure development is a long-term endeavour and financing issues are only a part of the equation. They must be accompanied by institutional know-how and proper governance structures to carry the efforts to fruition. Cities need the basic institutional building blocks—policies, regulations, enabling institutions, procedures and guidelines, and resources—to ensure that financing terms are honoured so that investors can keep coming back. Cities need the most help in the early project preparation stage where their visions are translated into specific projects they can take to the investors. IFIs and NGOs have been playing a critical role in providing the necessary support in this regard. When private sector financing is involved, especially for P3 undertakings that are often complex, cities also need PPP capacity building at multiple levels of governments.

With the changing urban landscape, new urban governance forms are also emerging that can facilitate infrastructure delivery and financing. The “smart city” is one such emerging form which is propelled by technology, but with the larger goals of enhancing the quality of urban services, reducing resource consumption, and engaging more effectively and actively with citizens. Smart city concepts are fast becoming a requisite to critical urbanization policy discussions and no conversation about cities can now take place without considering their “smartness” in one form or another. Much of the dialogues have been focused on technology.

The most critical gap at this juncture is in “development financing,” i.e., financing green-field projects that stimulate new growth and new developments, which have generally been perceived to be risky in the financial community. Some countries, such as Singapore, have made an effective use of their sovereign wealth funds in the past to carry out their critical national development agenda, but such efforts have been limited. IFIs, national governments, and institutional investors need to work together to streamline this development finance. More specifically, IFIs and national governments need to provide short-term early risk capital and institutional investors need to commit their stable low-cost capital for the long-term from the project get-go. For cities and local project sponsors, such streamlining would reduce overall financing costs significantly.

Way Forward

The IUC India project has currently identified a total of 5 pilot actions (3 LAPs and 2 CAPs) that will be developed into bankable projects by building capacity of the Indian ULBs. The selection is based on several factors including relevance and maturity of project, motivation and interest of the ULB, etc.³⁵ These include:

Surat / Rotterdam:

Based upon the experience of Rotterdam, Surat plans to develop an environment and citizen friendly water plaza with focus on the festival seasons in India. The project is

³⁵ Selection of cities may change in case the specific circumstances change.

expected to incorporate the latest water management technologies as well flood modeling solutions.

Nagpur / Karlsruhe:

Nagpur has relatively smooth vehicular traffic compared to some of the other Indian cities of its size and wants to take a lead by developing a public bike sharing infrastructure by using the best practices from Karlsruhe.

Udaipur / Aarhus:

The two cities have an ongoing relationship for transfer of knowledge and technologies within the wastewater sector. A project will be developed to treat wastewater sludge and recover resources.

Gangtok:

The Himalayan city of Gangtok, as part of its Climate Action Plan intends to address the situation with respect to vehicular traffic by introducing electric minibuses. A pilot action will be developed around this theme.

Panaji:

With a large and variable tourist influx, parking is a complex issue for the city of Panaji. Thus, smart parking is an essential component of the city's Climate Action Plan and will form a basis for the pilot action.

The next steps will be to develop each of the 5-pilot action into bankable projects by considering their technical, economic, environmental and social sustainability. An initial template will be developed that will showcase these projects to various financial institutions and schemes mentioned in the Manual and that find these pilot actions relevant. This template will then be fine-tuned to the needs of the financial institutions with the intention of providing funds / grants to these pilot action. Finally, an important aspect of this work package will be to communicate both within EU and India, the learning from this process.

USEFUL DOCUMENTS

- I. Elected officials guide to TIF: <https://www.gfoa.org/sites/default/files/EOGTIF.pdf>
- II. Pooled Finance Development Fund Scheme: <http://mohua.gov.in/upload/uploadfiles/files/POOLED%20FINANCE%20DEVELOPMENT%20FUND04.pdf>
- III. Climate Investment Fund: https://www.climateinvestmentfunds.org/sites/cif_enc/files/ctf_india_investment_plan_101411_0.pdf