



A Review on India's Urban Infrastructure Needs and its Financing

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Abstract

India is rapidly urbanizing, and the financing needs of cities are expanding proportionately. A sustained increase in urban infrastructure investment is needed to enable economic growth, improve quality of living and livability, and build resilience to the expected impacts of climate change. However, cities face significant challenges. Despite a substantial increase in fiscal transfers to cities in the last decade, there is a large shortfall of resources relative to needs. Government of India (GoI) has previously estimated the urban infrastructure financing deficit to be 80% of needs¹ and has underscored the potential for financing from private sources to bridge this gap, including through municipal borrowing and public-private partnerships (PPPs). GoI and several states have taken measures to enable commercial financing, but its use remains extremely limited even in financially strong cities. Systemic constraints seem to constrain larger volumes of private financing from flowing to the urban sector.

Key words: Urbanization, Infrastructure, Financing, Government.

Introduction:

Cities need more and higher-quality infrastructure. However, many cities struggle to find the right finance to realise their projects, and the potential relative benefits of financing through the public sector, the private sector, and international organisations are often unclear. Many city governments lack the capacity to assess these Introduction relative benefits, to access the range of finance options, and to determine the most appropriate ways of funding the infrastructure – both the initial construction, as well as the operation and maintenance. These shortfalls result in less sustainable projects, some of which can become a significant burden for citizens.

To meet the needs of the growing urban population, India needs to increase its annual investment in city infrastructure from an average of \$10.6 billion a year in the past decade to an average of \$55 billion a year for the next 15 years, a World Bank report released Monday said. The report, titled 'Financing India's Infrastructure Needs: Constraints to Commercial Financing and Prospects for Policy Action', estimated that India would need \$840 billion over the next 15 years.

"By 2036, 600 million people will be living in urban cities in India, representing 40% of the population. This is likely to put additional pressure on the already stretched urban infrastructure and services of Indian cities – with more demand for clean drinking water, reliable power supply, efficient and safe road transport amongst

others. Currently, the central and state governments finance over 75% of city infrastructure, while urban local bodies (ULB) finance 15% through their own surplus revenues,” a World Bank statement said.

About half of the investment needed – \$450 billion – in the next 15 years was in the basic municipal services sector that includes water supply, sewerage, solid waste management, roads and streetlights, while most of the remaining amount was to address urban transport requirements, the report said.

India is rapidly urbanizing, with about 600 million people expected to be living in cities by 2036. This will put additional pressure on the already stretched urban infrastructure and services in these cities. This report estimates that India will need \$840 billion in investment into urban infrastructure over the next 15 years- or \$55 billion per year on average- if it is to effectively meet the needs of this fast-growing population. Despite a recent increase in public sector financing, there is still a large shortfall of resources relative to these needs. Financing from private and commercial sources, such as through municipal debt and public-private partnerships, can play a substantial role in addressing this shortfall. However, the use of such financing is very limited at present even in financially strong cities. This report analyses the demand- and supply-side constraints to raising private financing for urban infrastructure and provides policy actions to address them. It first presents latest estimates of future infrastructure investment needs for Indian cities and reviews recent trends in municipal finance and private commercial financing to meet these needs, focusing on municipal debt (such as loans and municipal bonds) and public-private partnerships. It then assesses the key constraints that undermine the mobilization of private finance for urban infrastructure. Finally, it provides proposals for policy action on how these constraints can be addressed at the demand and supply sides and shows how the Government of India can play an important role in removing various market frictions faced by cities. It proposes sequenced measures that can be taken at the city, state, and federal levels to create an environment in which private commercial finance becomes a much bigger part of the solution to India’s urban investment challenge.

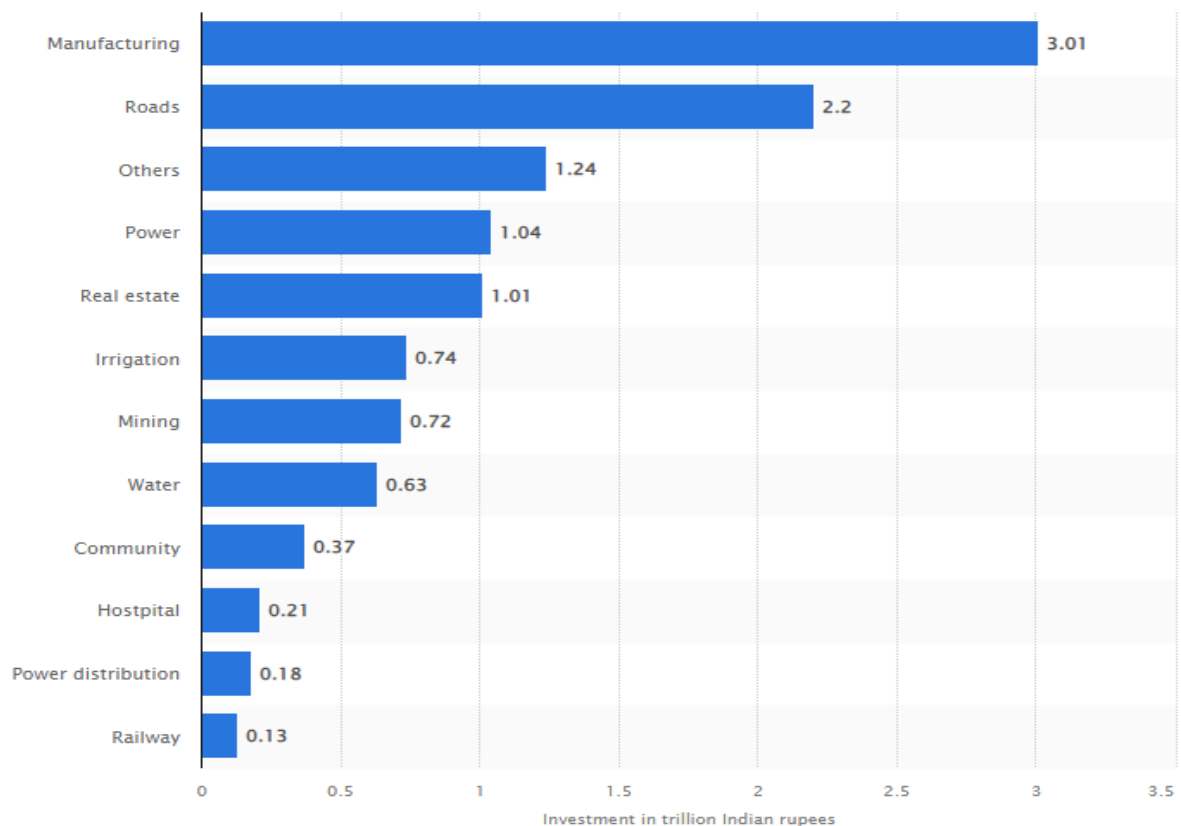
A new World Bank report estimates that India will need to invest \$840 billion over the next 15 years- or an average of \$55 billion per annum- into urban infrastructure if it is to effectively meet the needs of its fast-growing urban population. The report, titled “Financing India’s Urban Infrastructure Needs: Constraints to Commercial Financing and Prospects for Policy Action” underlines the urgent need to leverage more private and commercial investments to meet emerging financial gaps. By 2036, 600 million people will be living in urban cities in India, representing 40 percent of the population. This is likely to put additional pressure on the already stretched urban infrastructure and services of Indian cities – with more demand for clean drinking water, reliable power supply, efficient and safe road transport amongst others. Currently, the central and state governments finance over 75 percent of city infrastructure, while urban local bodies (ULB) finance 15 percent through their own surplus revenues.

Only 5 percent of the infrastructure needs of Indian cities are currently being financed through private sources. With government’s current (2018) annual urban infrastructure investments topping at \$16 billion, much of the gap will require private financing. “Cities in India need large amounts of financing to promote green, smart, inclusive, and sustainable urbanization. Creating a conducive environment for ULBs, especially large and creditworthy ones, to borrow more from private sources will therefore be critical to ensuring that cities are able to improve living standards of their growing populations in a sustainable manner,” said Auguste Tano Kouamé, Country Director, World Bank, India.

The new report recommends expanding the capacities of city agencies to deliver infrastructure projects at scale. Currently, the 10 largest ULBs were able to spend only two-thirds of their total capital budget over three recent fiscal years. A weak regulatory environment and weak revenue collection also adds to the challenge of cities accessing more private financing. Between 2011 and 2018, urban property tax stood at 0.15 percent of GDP compared to an average of 0.3-0.6 percent of GDP for low- and middle-income countries. Low service charges for municipal services also undermines their financial viability and attractiveness to private investment. Over the medium term, the report suggests a series of structural reforms including those in the taxation policy and fiscal transfer system - which can allow cities to leverage more private financing. In the short term, it identifies a set of large high-potential cities that have the ability to raise higher volumes of private financing.

“The Government of India can play an important role in removing market frictions that cities face in accessing private financing. The World Bank report proposes a range of measures that can be taken by city, state, and federal agencies to bend the arc towards a future in which private commercial finance becomes a much bigger part of the solution to India’s urban investment challenge,” said Roland White, Global Lead, City Management and Finance, World Bank, and co-author of the report.

Investments in infrastructure in India in financial year 2021



Urban Infrastructure Financing:

Urban Infrastructure Financing is the process by which cities obtain the right mix of funding that they need to extend and improve their physical infrastructure, so that eventually all their residents have access to adequate services. Urban infrastructure financing combines: (1) local government capital budget allocations; (2) grants from state and central governments; (3) bank and institutional loans; (4) proceeds from long-term municipal bonds; (5) proceeds from pooled bonds issued by urban infrastructure funds on behalf of smaller local governments; (6) micro-credits for the poor; and (7) other emerging financing options, such as leveraging municipal assets and private equity. Depending on the creditworthiness of the local government and the commercial viability of its projects, the mix of financing components will vary. Strengths. Urban infrastructure financing enables local governments to extend and improve municipal services. It spreads the cost of infrastructure over the useful life of the physical asset. It is more responsive and flexible than relying on one source of funding, such as limited grants, and it enlarges the envelope of financial resources available to local governments and the urban poor. Weaknesses. Urban infrastructure financing in India still lacks a regulatory environment that can simultaneously encourage deepening of financing options and protect against risky transactions. It is not yet well understood by state and local government officials. Institutional support for adequate local government project development is lacking, and key financing components have yet to be broadly replicated.

Effecting factors:

1. It is essential to expand the investment envelope by mobilizing long-term debt financing from the financial markets. There are never enough budget resources available from government and donors to expand urban infrastructure coverage at a pace that keeps up with rapid urban growth.
2. Local governments need to implement sound and transparent financial management practices and demonstrate the creditworthiness of their proposed investments. Financial markets require

accurate and timely information about the risk of investing in urban infrastructure before they will provide long-term debt financing.

3. Urban infrastructure needs to be financed on longer terms than is typically available through bank loans. Most bank loans are constrained by the bank's need to match the terms of their assets and liabilities. This usually prevents banks from offering financing with a term that approximates the useful life of urban infrastructure.

4. A mixed finance approach is required to increase the overall funding available for infrastructure and to match the timing of funds with when they are needed. A mixed approach strategically utilizes own-source revenue, grants, borrowing (loans and bonds), and equity. By leveraging these varied sources against one another, local governments will be in a better position to fully finance their priority projects.

5. The small projects of multiple local governments need to be aggregated into one investment vehicle to provide them with access to long-term financing at reasonable cost. Smaller and financially weaker local governments have difficulty obtaining long-term financing because the amount they can afford to borrow is too small to attract capital market investors, and their individual credit ratings would typically be below investment grade.

6. Careful project development and financial structuring is essential to attracting long-term debt financing. Most local governments have little or no experience preparing projects for financing and require both financial and technical assistance throughout the process.

7. The urban poor can afford house connections to infrastructure when they can pay for them over time. The urban poor rarely have significant savings and their income may fluctuate substantially from week to week. They need a flexible means to pay off infrastructure connection fees over time, rather than in a single large payment.

Financing options: The private sector

Bonds (debt) City governments can issue a bond to borrow money from the market to finance an infrastructure project. If such project provides a sufficient revenue stream the bond can be tied exclusively to the project. These bonds are called project bonds. Where the bonds are to be repaid from the general revenue (and/or transfers) accruing to the city they are called general obligation bonds. Together these types of city-issued bonds are called municipal bonds. In a slightly different form, a city may "securitise" a stream of revenue such as parking fees and issue a bond backed by such receivables. If a city government provides its infrastructure development through a publicly owned company, this company can also issue corporate bonds. Also, city governments can issue bonds for particular types of assets. Green or climate bonds can encompass infrastructure assets of certain types if they fulfill certain criteria of environmental sustainability or climate change resilience (e.g. a compressed natural gas busway replacing pollution diesel busses and cars). These bonds have attracted particular attention by large-scale institutional investors (see below under Private Equity Funds). More common in the area of social infrastructure services, city governments can issue social impact bonds, where an intermediary entity borrows money to pay for a certain infrastructure service and the government releases money to this intermediary if a pre-agreed performance target is achieved by the service provider. In that case, the intermediary can use the government return to pay the investors – as such the bond repayment is contingent upon successful delivery.

Public-Private Partnerships (PPPs)

City governments can use many different types of a public-private partnerships (PPPs) to implement infrastructure projects. These range from a limited role for the private sector when it is only contracted to provide the construction or the operation of a project. The private sector's role is larger when it comes to: i) a lease arrangement where it operates an infrastructure asset, pays a certain fee (lease) to the government, charges users, and retains operational profits (to varying degrees); ii) a concession to build and operate and later on transfer the infrastructure asset back to the government ("BOT"); or iii) a concession to design, build, and operate the infrastructure asset ("DBO"). Such arrangements can be based purely on the revenues derived from the asset (as in the case with some toll roads) or as an availability payment where the government pays for the infrastructure provision (performance) irrespective of its actual demand (number of

user and/or user fees, which would be retained by the government). Hybrid arrangements are also possible. These arrangements usually involve the establishment of a Special Purpose Vehicle (SPV). Moving toward partial privatisation, PPPs can also be structured as joint ventures, where both public and private sector take a share in the entity building/ operating the infrastructure asset.

Privatisation/Divesture (equity)

One scale further than a PPP is the complete privatisation of an infrastructure asset, involving either the sale of an existing asset or, for a new asset, the agreement that the design, construction and operation will be fully owned by a private company. In this case, the government has no direct share in the project. However, the government will normally have legislative, regulatory or administrative mechanisms that govern the operation of the infrastructure asset ensuring the public interest is served.

Infrastructure Investment Funds (equity and debt)

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: i) specialised infrastructure equity funds that pool investments in infrastructure in specific sectors and regions; and ii) 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 Risk Mitigation (debt and equity)

There are numerous instruments to decrease the cost of infrastructure project finance by lowering the risk profile of such investment. One example is to structure equity into tiers with the provision of a high risk, first-loss tier of capital that will be used first to cover for losses in an infrastructure project to a certain defined amount. Intermediate or mezzanine finance is a form of quasi-equity capital, as it ranks between a project's senior debt and equity – it receives higher returns on investment, as it takes higher risks, but in case of losses it also is repaid only after senior debt. A third example is convertible debt where an initially borrowed amount of money changes from debt into equity shares of the infrastructure asset at a defined point in time, for instance when the project is up and running, thereby providing potential return on investment at a later stage. City governments can also decrease the risk profile of their projects by insuring (hedging) it against various commercial risks, such as liquidity shortages and interest rate changes, or political and environmental risks, such as regulatory changes or natural disasters. Another way of reducing risk is to provide enhancement to the financing institution itself, thereby reducing the cost of finance (the interest rate), through various forms of credit enhancement and guarantees.

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 ("lastmile" 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.

Financing options: The public sector

Municipal Development Funds (MDFs) and Government Owned Development Financing Institutions (DFIs) (debt, guarantees and grants)

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.

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 particular sector focus. Governments also often channel grant funds for project development and for subsidies to particular activities through such entities.

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 low.

Public Risk Mitigation (debt and equity)

Similar to the private sector, the public sector also provides a number of instruments to decrease a project's risk, thereby lowering its costs for debt and increasing its attractiveness for equity investments. One example is the formation of guarantee funds that 'insure' city debt, generating a lower cost credit. Its members – which are usually smaller municipalities – can thus use the fund to guarantee the repayment of debt finance for an infrastructure project in case of default. Another example are loan loss reserves that can be kept by MDFs and DFIs, reducing their risk of loan default.

Tax Exemptions

These can be provided by higher level governments for specific projects or instruments. For example, the United States provides tax exemption for municipal bonds for which returns are tax-exempt, thus attracting more investors in local capital markets

Funding ways for urban infrastructure:

There is often much confusion about infrastructure financing and funding. While the financing refers to obtaining and structuring the money needed to build an infrastructure asset, the funding refers to pay back the financing – where it is not from current cash flows – and the money needed to operate and manage an infrastructure asset. For the funding of urban infrastructure, city governments can use numerous instruments, the most common instruments include:

User Fees

The most straightforward funding option for urban infrastructure is to charge people for using the infrastructure and/or its services. The fee can be on a per-use basis (e.g. toll roads), on a periodic (e.g. yearly) flat rate (e.g. park entrance or garbage collection fee), on a consumption rate (e.g. water consumption rate or electricity fee) or hybrids of these (e.g. a flat rate, affordable 'lifeline' tariff up to a certain consumption of water and consumption-based after that level). It increases the effectiveness of such fee systems when an electronic system is put in place to ensure the correct and easy payment/collection. A

special form of user fees are public benefit funds or system benefits charges where improvements to an infrastructure system (e.g. increasing energy efficiency due to decreased electricity supply interruptions through a new electric grid system) are priced on top of the standard utility bill to be paid by all customers – generally these apply only to the current beneficiaries of the enhanced system.

Revolving Funds

Revolving funds have the advantage to provide, for instance, households with below-market loans to pay for the installation or connection to an infrastructure service. Instead of a one-time payment or unaffordable market loans, the households enjoy a longer repayment period at better rates (sometimes combined with a grant). The government provides initial finance into the fund, but once it starts revolving, households pay back their loans – experience has shown that community-based revolving funds usually have quite high levels of repayment over 90%. These payments replenish the fund, which can then again issue loans to other households. Revolving funds, particularly in location-based projects, such as community water supply or sanitation, have a strong equity benefit, while ensuring a stable funding basis for infrastructure projects that can be rolled out incrementally instead of struggling to pool huge financial resources together at once. They do eventually ‘wind down’ however, as below-market interest rates and/or grant components (as well as some bad loans) eat into the fund. This does not negate their value however – a well-run fund can have a large impact. Local governments need the skills to establish such funds and, usually, to support communities in administering them.

Land Banking/Pooling

‘Land banks’ can be accumulated by a city or development agency with sufficient strategic planning capacity, financial resources, and foresight to acquire (or hold) land in and around expansion areas of the city. Where governments already hold larger (undeveloped) land plots, their release can be strategically planned to maximise community benefit and the efficiency of infrastructure provision. Another option is that governments purchase land from private owners before rezoning, implementing infrastructure projects and release of land for development – such operations are undertaken by agencies such as Urban Growth New South Wales but require significant funds. They can be done both on greenfield developments (undeveloped land), or on previously industrialised land that requires rehabilitation (brownfield recycling). In Japan and Korea, governments have brought together land owners in a ‘pool’ and readjusted holdings to enable higher density development and the efficient provision of infrastructure. In such a case the government does not buy the land, but shares the benefit from rezoning (as do the original land holders). Similar mechanisms have been used in the People’s Republic of China. These mechanisms, however, require the just and transparent use of an effective legislative base.

Air Rights

Cities can generate revenue from this form of transferable development rights. Developers that want to build at a higher density by adding more floors (height) to their buildings can purchase such floor height from neighbouring lower buildings. Typically, public facilities such as schools, libraries, or hospitals can sell their air rights to private developers. The return can then be invested in the funding of infrastructure assets and social services. This and other forms of development rights can be sold at a fixed price or through auctions. The system requires that development controls be enforced and that exemptions are given in a fair and environmentally responsible manner.

Development Charges

There is a wide variety of one-time development charges that can be placed upon private sector companies and individuals that are developing land. One example are tap/ linkage fees (connection fees – also possible as developer exactions), which are paid by the developer or beneficiary for linking up to an infrastructure network (e.g. electricity line). Another example are impact fees that are imposed onto developers for the (possible) negative effects of their development onto the environment, people, or the infrastructure system (e.g. due to increased traffic volumes on access roads or noise and air pollution from a newly built industrial

facility). In that sense, development charges function to collect fees to pay for related infrastructure or other scale-up or improvement measures.

Value Capture

City governments can benefit from increased land value of newly developed land or neighbourhoods that receive a new or improved infrastructure by imposing various taxes. One example is a land value increment tax where land owners are charged an additional tax to capture some or all of the increase in land value due to the improved infrastructure (e.g. the opening of a new MRT line in that area). In addition to this is the increase in property taxes that will reflect the ongoing increase in land values – if they are correspondingly assessed. Betterment levies work similarly, although they are imposed only once after an infrastructure improvement has been completed. Traditionally these taxes have been poorly designed and utilised in Asia, but they can be base funding for significant development – such as in Tax Increment Financing in the United States.

Public-Private Partnerships (PPPs)/Outsourcing

Although it is highly recommended to plan a project as a PPP from the outset, it is also possible to introduce a PPP scheme after construction. In this case operating contracts or leases are most common. These can provide additional funding for local governments if the outsourcing allows for the net cost of providing the service to be lower through the private sector. This funding is derived from operating leases or usage fee shares as explained above.

Bonds Funded by New Charges or Asset Sales

As described under private sector financing options, bonds are a debt instrument that can play a significant role in the re-financing stage of infrastructure projects. Although usually not very popular, charges can be introduced on such infrastructure (e.g. an expressway) and, on the basis of such, it is possible for city governments to offer bonds, the proceeds of which can be used to fund infrastructure assets. Another option is the bundling of several infrastructure assets into a municipal bond. Assets, usually land or buildings, that are underutilised can be either sold or leased to the private sector to gain additional revenue. A thorough asset inventory can assist in identifying such opportunities

Revenue Support from Higher Levels of Government

Although well planned urban infrastructure should ideally support itself through the various funding sources described above, it is still quite common that local government revenues are insufficient and they require additional support similar to the mentioned viability gap funding. Revenue support can be provided by different government levels and it can be made conditional upon the achievement of certain performance targets of an infrastructure project.

Conclusion:

While traditional forms of municipal finance, including municipal revenues, loans, or intergovernmental transfers (grants) from either national or international governments, retain their importance, there is a wide selection of financial instruments both in the private and public sector to fit a variety of infrastructure projects. In the private sector, these options include for instance bonds, public-private partnerships (PPPs), privatisation/divestiture, infrastructure investment funds, private risk mitigation, and crowdfunding. In the public sector, options include, among others, municipal development funds and development financing institutions, pooled financing, viability gap funding, public risk mitigation, and tax exemptions. International organisations increasingly provide instruments for sub-sovereign finance, through concessional loans, financing facilities, green and climate funds, carbon finance and emissions trading schemes, private sector loans and equity, risk mitigation, sharia-compliant finance, and export credit agencies. In order to ensure long-term financial sustainability, cities must determine the appropriate funding instrument, namely how they will pay back the financing – where it is not from current cash flows – and the money needed to operate and manage an infrastructure asset. Funding options include, for instance, user fees, revolving funds, land banking/pooling, air rights, development charges, value capture, PPPs, and outsourcing. Finally, cities need to have the skills and capacity to be able to mobilise these financial instruments and thus manage and operate infrastructure projects effectively. Local governments need not have all specialist skills on staff – knowing where to get them and actually using the required skills and processes is sufficient.

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