

Increasing private sector investment into sustainable city infrastructure

PwC and Global Infrastructure Facility

January 2020



Contents

Executive summary	3
Section 1	4
Delivering city infrastructure to meet the needs of citizens on a sustainable basis	5
Section 2	8
Making cities investable	9
Section 3	15
Financing infrastructure at city level	16
Section 4	23
Conclusions - Key considerations for cities and investors	24



Executive summary

Cities are the engine of the global economy, accounting for approximately 80% of global GDP. The current urban population of around 3.9 billion is expected to grow to around 6.34 billion by 2050. Cities consume over two-thirds of the world's energy and account for more than 70% of global CO2 emissions. This rapid population growth together with the impacts of climate change, particularly in emerging markets and developing economies, is putting significant strain on existing infrastructure and demands significant investment in new energy, water and sanitation, transport and other infrastructure. The Sustainable Development Goals (SDGs) address these global challenges and set out how a better and more sustainable future for all can be achieved, including the important role sustainable infrastructure will have in combating climate change and strengthening resilience in cities. To achieve the SDGs, there is an increasing need for greater public-private collaboration in order to achieve the scale of investment required.

Making cities investable

City governments should attempt to address through strategic reforms (working with national government where necessary), four preconditions that investors generally use to assess the suitability and sustainability of investments. These are:

- **Fiscal environment:** how the government manages and monitors its spending levels, tax rates, and liabilities with respect to the financing instrument;
- **Investment and credit environment:** credit ratings needed to attract financing from capital markets, the capacity to plan large capital projects, currency risk, and interest rate volatility;
- **Regulation, legal and policy environment:** whether a clear legal and regulatory system is in place to authorise and govern subnational borrowing and the effectiveness of the land and property system; and
- **Institutional environment:** the skills and capacity needed to structure and implement a financing instrument and to avail investment opportunities to the private sector through public-private partnerships, for example, and whether government bodies are effectively coordinated with clear assignment of responsibilities.

These environments should be underpinned by a strong vision and leadership from the city accompanied by a long term strategic infrastructure plan including a pipeline of investable projects which will provide an acceptable return level capable of attracting private sector investors. There are many examples of work being done on technical assistance and capacity-building to support cities in this crucial area.

Cities increasingly recognise that they need to position themselves better to provide confidence to private investors in order to meet their objectives in delivering sustainable infrastructure. Some city governments are very successfully engaging with the global and national infrastructure community (investors, operators, owners), leveraging the tools and support through MBD's to develop public-private cooperation in order to achieve this.

Financing infrastructure at the city level

City infrastructure has traditionally been provided by the public sector out of current fiscal resources. However, this seldom, if ever, meets the full investment need necessitating public borrowing or private partnerships. Both require looking closely at the ability of the city or project to repay the borrowings or investment through a range of income or funding streams. Private investment in public infrastructure is increasing as the risk return tradeoffs are better understood by the private sector.

There are an array of financial instruments available to deploy to attract private investment, and there are three primary ways that cities can look to raise money for urban infrastructure.

- Asset sales and land development;
- Public-private partnerships; and
- Asset monetisation / securitisation.

These are illustrated through examples of specific specialised finance and funding and instruments: green bonds, land value capture and blended finance.

In conclusion, there are no easy answers when examining the ways of boosting private finance in cities in developing countries, but it is clear it has a valuable role to play in meeting global low-carbon, climate-resilient infrastructure ambitions. Banks and institutional investors can provide the upfront capital investment to finance the infrastructure, but cities and governments need to provide the predictable revenue streams in order to support this financing.

Section 1

Delivering city infrastructure to meet the needs of citizens on a sustainable basis

Delivering city infrastructure to meet the needs of citizens on a sustainable basis

The SDGs and Paris Agreement challenge

Cities are the engine of the global economy, accounting for approximately 80% of global GDP¹. The current urban population of around 3.9 billion is expected to grow to around 6.34 billion by 2050 - 70% of the total global population. This growth is rising fastest in a handful of emerging markets and developing economies, namely India, China and Nigeria, who will contribute between them more than 35% of overall growth in urban populations between 2018 and 2050².

This urbanisation trend is posing major challenges for cities in both developed and developing countries, with the greatest impact on the latter. As cities grow at a rate not seen in recent history, past trends suggest that infrastructure development will not keep up with the demands, making it difficult for city governments to deliver an adequate standard of living and meet modern-day expectations and the Sustainable Development Goals (SDGs)³.

The IMF estimates spending to meet the SDGs in 2030 amounts to US\$ 2.6 trillion (or 2.5% of the 2030 world GDP) in 121 emerging market economies and low-income developing countries⁴. According to the World Bank, new climate-smart infrastructure alone could cost low and middle income countries anywhere between 2% (US\$ 640 billion) and 8% (US\$ 2.7 trillion) of GDP per year to 2030 depending on the quality and quantity of service aimed for and the spending efficiency achieved to reach this goal. Moreover, while meeting the SDGs in a climate tenable way will require substantial investment in new infrastructure, it is not only about spending more, it is also about spending more efficiently⁵.

The size of the challenge is well documented. That private investors and financiers across the globe control more than the magnitude of financing needed to close the infrastructure financing gap is also well documented. For example, research shows pension funds hold in excess of \$30trn AUM, whilst institutional investors more broadly hold in excess of \$ 85trn AUM⁶. Successfully directing a portion of the capital from investors alone could fund all investment needed to achieve the SDGs⁷. The primary obligation to provide public services through infrastructure remains with governments while the private sector, multilateral development banks (MDBs), donor agencies and non-governmental organisations (NGOs) can provide critically needed support to those government to plan, develop, finance, build and operate the infrastructure needed. There are few, if any, scenarios where outside sources can holistically deliver all national and subnational infrastructure programmes within a country. Recognising the primary responsibility of governments to deliver the needs of its citizens is the first step in delivering the investment requirement.

The range of infrastructure that developing country cities need to develop is vast - transport, water and sanitation, solid waste disposal, electricity generation, transmission and distribution - and needs to be fit for purpose to support future generations. Figure 1 provides a glimpse of the urban infrastructure required in key sectors in developed and developing countries and the investment estimates happening across selected regions.

Figure1: Infrastructure requirement to meet the projected demand:

Energy	Water & sanitation	Transport
<ul style="list-style-type: none"> Global energy demand to increase from 13563 MToe in 2013 to 15375 MToe in 2040 Electricity demand in 2040 would be 80% higher than 2010 	<ul style="list-style-type: none"> Water demand projected to increase by 55% globally between 2000 – 2050 240 million people will be without access to an improved water source by 2050 1.4 billion people projected to be without access to basic sanitation in 2050 	<ul style="list-style-type: none"> Increase in Private Transport vehicle – From 1 billion in 2010 to 2.1 billion by 2050 (Excluding two wheelers)

Source: Based on World Bank, UN DESA and UN-Habitat data

The need for sustainable infrastructure is heightened by the fact that cities are particularly exposed to the impacts of climate change. Cities consume over two-thirds of the world's energy and account for more than 70% of global CO₂ emissions⁸. Additionally, 90% of urban areas are situated along coastlines, increasing susceptibility to the predicted rise in sea levels. Those in emerging economies are especially vulnerable, characterised by rapidly swelling informal settlements that lack even basic infrastructure and services⁹, and exposing their communities to the harshest impacts from changing climates such as extreme weather events. It is therefore critical to promote infrastructure investment into low-carbon, climate resilient infrastructure in climate-prone areas in order to mitigate these impacts. IFC reports that cities in emerging markets have the potential to attract more than US\$ 3.1 trillion in climate-related investments in renewable energy, public transportation, waste and water by 2030¹⁰.

SDG 9.1

“Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all”

As stated by the UN - **“Climate change presents the single biggest threat to development...Urgent action to combat climate change and minimize its disruptions is integral to the successful implementation of the [Sustainable Development Goals] SDGs.”**

The climate action goal (SDG13) cuts across many of the other goals, including clean water (SDG6), clean energy (SDG7), sustainable industry, innovation and infrastructure (SDG9) and sustainable cities and communities (SDG11). Investment in climate-aligned assets at city level is therefore essential, particularly in emerging economies.

Investment in sustainable infrastructure can contribute to the strengthening of a city's resilience to climate challenges and can support the transition to a low carbon economy, all whilst stimulating economic growth. It's clear that many cities understand and are prepared to act on the pivotal role that they have to play in safeguarding the future health of the planet¹¹ whilst recognising the increasing need for, and benefits to be captured through, greater public-private collaboration in order to achieve this.

The benefits available from private sector involvement in public urban infrastructure extend beyond providing private capital to plug investment gaps. They can apply throughout the whole infrastructure value chain including strategy, planning, design, implementation, operation and maintenance of infrastructure¹², and can bring value by:

- Distributing the cost of large-scale urban infrastructure more fairly over its lifetime, helping to achieve intergenerational equity goals;
- Offering risk management and technical expertise and creating the opportunity to transfer knowledge and skills which can increase the effectiveness of public sector approaches; and
- Leveraging innovation from investment experience cross-industry to deliver value.

Given that choices on infrastructure today will lock in future levels of emissions and resilience of economies for decades to come, to support future sustainability the focus must be on how to direct private capital towards building:

- A clean and plentiful water supply;
- Low carbon, reliable energy infrastructure providing power to meet critical needs;
- Sanitation to deliver modern standards of hygiene efficiently and sustainably;
- Fast and efficient transport and mobility infrastructure with sufficient capacity to cater for growing and changing populations; and
- A safe and secure environment in which people can live and work with confidence¹³.

The opportunities cities present for private investors to align with SDGs and Paris Agreement

Traditionally, city infrastructure has been provided by the public sector out of current fiscal resources. Grants from central government can only meet a small part of total needs for infrastructure and services. Concessionary loans and international donations rarely make up the shortfall, even for poorer nations. Cities are also now more reliant than ever before on private sector support to scope, finance and deliver projects¹⁴.

The potential for private sector capital to help address cities' investment gaps is significant. Estimates suggest that private investors globally control some US\$ 120 trillion of assets. Global investment in unlisted infrastructure assets hit a record US\$ 491bn in 2018, and 50% of infrastructure investors plan to increase their allocation to the asset class over the longer term¹⁵. Much of this capital comes from developed markets and in turn is aimed at developed market investment. Furthermore, fund investment in developed markets is primarily in operational infrastructure not infrastructure in construction.

Very little of these potential funds find their way to low and middle income countries, let alone cities. Research by the World Bank estimates that investment in low and middle income countries by pension funds, sovereign wealth funds, mutual funds, and other institutional investors is only 0.67% of the total global investment in developing countries according to the World

Bank's PPP database¹⁶. We believe this low investment is predominantly due to perceived risks such as political rule, currency risk, repatriability of earning risk, rule of law, the ability of users to pay the required tariffs and so on. In certain circumstances intervention / incentives are therefore required to facilitate capital to invest in greenfield / developing market infrastructure¹⁷.

From an investor perspective, whilst a primary aim remains the generation of attractive and sustainable risk-adjusted returns, demonstrating a responsible investment agenda is also key. Traditionally this was done through the Environmental Social and Governance (ESG) lens and ESG considerations are now largely mainstream and embedded in all stages of the deal cycle from selection to monitoring and reporting. Now however, there is growing demand from private investors seeking to align capital allocation decisions specifically with the SDGs with many adopting the SDGs as a reference point and impact measuring tool to complement their ESG methodologies¹⁸. Also, following the Paris Agreement, climate change impacts are increasingly being recognised as a key risk. Several standards and frameworks have flourished worldwide that encourage integrating climate-related factors in investment decisions (where they aren't currently considered as part of ESG); most prominently the Task Force on Climate-related Financial Disclosure (TCFD)¹⁹. Figures from the UN show that 170 companies have made almost 400 individual commitments specifically tied to supporting the SDG 11 commitment to building sustainable cities, with almost 1,700 companies committing to in the region of 3,000 actions addressing climate change²⁰. The alignment of interests presents a significant opportunity for those cities creating the right environment to attract investment in low carbon, climate-resilient projects.

The need for private sector involvement is undisputed. But what does a strong enabling environment look like for a city looking to attract this capital, and what are the key factors private sector investors consider when examining city-level investment opportunities? This is explored in more detail in the next section.

Fund in focus: Meridiam and Rockefeller Foundation Urban Resilience fund

Meridiam and Rockefeller Foundation recently announced the launch of a new urban resilience fund with the primary objective of mobilising more private capital. The vehicle will support project development and preparation at the city level and is aimed at investment in anything that can help urban environments.

The fund will seek to invest in both developed and emerging markets and across sectors in projects aimed at helping resilience and the transition to low carbon economy. The parties are also looking to develop an Urban Resilience Screen based on the SDG's to support investors in evaluating the resilience of an infrastructure project. The fund is expected to close in 2020.

Source: Infrastructure Investor article²¹

Section 2

Making cities investable

Making cities investable

Creating investor-ready cities

In a recent paper written by experts at PwC and London School of Economics, The Coalition for Urban Transition²² sets out four categories of preconditions that investors may use to assess the suitability and sustainability of investments. City governments therefore should attempt to address these preconditions through strategic reforms (working with national government where necessary):

- **Fiscal environment:** how the government manages and monitors its spending levels, tax rates, and liabilities with respect to the financing instrument;
- **Investment and credit environment:** credit ratings needed to attract financing from capital markets, the capacity to plan large capital projects, currency risk, and interest rate volatility;
- **Regulation, legal and policy environment:** whether a clear legal and regulatory system is in place to authorise and govern subnational borrowing and the effectiveness of the land and property system; and
- **Institutional environment:** the skills and capacity needed to structure and implement a financing instrument and to avail investment opportunities to the private sector through public-private partnerships, for example, and whether government bodies are effectively coordinated with clear assignment of responsibilities.

These frameworks should be underpinned by a strong vision and leadership from the city²³ accompanied by a long term strategic infrastructure plan including a pipeline of investable projects that are economically, socially and environmentally sustainable, politically and practically deliverable, and will provide an acceptable return level capable of attracting private sector investors.

Fiscal, investment and credit environments

At city level, investors will look at the creditworthiness of the city and any guarantors backing the city. The World Bank estimates show that less than 20% of the largest 500 cities in the developing world are deemed creditworthy²⁴. This is mainly attributed to weak revenue bases. By strengthening their financial systems by charging users for infrastructure, improving collection of arrears, using technology to reduce the cost of revenue administration and deploying new and innovative models of finance and investment, cities can almost certainly improve their creditworthiness and achieve the degree of financial autonomy they need to unlock available capital.

At a project level, investors require a high degree of certainty that projects will go ahead and that anticipated cashflows will be realised. Innovative financial and collaborative approaches will be key to preparing projects that private capital can back.

Today, most established financing approaches will largely benefit creditworthy metropolises and megacities²⁵. That leaves the majority of other cities – particularly in the developing world – hard-pressed to access financing on the required scale on a purely commercial basis. To overcome that they will need to pay sustained and disciplined attention to policies underpinning their creditworthiness. This in turn will allow cities to access capital markets and special donor funds for loan-based finance to invest in urban infrastructure investment.

Informational study: City of Kampala, Uganda

Support from external sources can help cities improve in this area, for example, with technical assistance from the Public Private Infrastructure Advisory Facility (PPIAF), Kampala's government managed to set out a strategic plan to improve its governance and financial management. In successfully implementing the plan, Kampala has gained a reputation for being an effective, reform-minded and innovative authority, and improved its creditworthiness (and achieved an "A" rating on the national scale for long-term debt instruments), increasing locally generated revenue by 83% within a year and almost doubling its borrowing allowance for large-scale urban infrastructure. This has helped to underpin its ability to develop viable sustainable infrastructure projects such as Bus Rapid Transit²⁶.

Regulatory, legal and policy environment

We assess that the more robust and structured the regulatory framework, and the more efficiently it is enforced by independent regulators, the greater the likelihood investors will consider investing in projects. The regulator's monitoring and oversight capability should be clearly defined and applied in a targeted and efficient but not disproportionate manner. The role of the regulator will be varied but includes avoiding monopolistic behaviour, abuse of market power, encouraging investment, independence of decision making, equitable and fair protection of customers and investors alike and generally building market confidence.

If these conditions are not in place cities may need to encourage national legislators to act swiftly and initiate the necessary reforms and new legislation if they are to gain investor confidence. Indeed, formal reassurance for investors from state bodies may in any case be needed to reinforce the level of confidence needed in the investment community before finance is committed.

Institutional environment

In the competition for capital, it is critical for a city to strengthen the institutional framework underpinning its working practices to avoid it becoming an impediment for private investors to play a role. This includes:

- Clearly articulating roles and distinct responsibilities e.g. fast-track decision-making and planning processes;
- Transparent and flexible procurement frameworks;
- Supporting the creation of an environment that can attract and retain the human capital necessary to implement plans is also essential. For example, public-private investments require a set of financial, administrative and legal expertise from all the subjects involved. Major bottlenecks occur when public authorities do not have the capabilities required to develop pipelines of investment opportunities that are attractive to the private sector; and
- Creating a series of trusted partnerships to advance project development in a more streamlined and cohesive manner.

City leadership and planning

Delivering urban infrastructure that can meet the needs of cities swiftly and economically requires a clear, well formulated vision of city growth and economic prosperity, underpinned by a set of well-defined strategic objectives and initiatives including resilience and sustainability. It should guide development across the necessary range of critical infrastructure according to clearly articulated priorities. The World Economic Forum indicates that cities' leadership "needs to change from linear policy implementation to a more systematic, proactive and collaborative approach that promotes investment and facilitates successful economic progress. This new urban leadership approach requires constant engagement and consultation with the private sector, academia, civil societies and citizens, in order to build trust among the partners, social capital and urban economic well-being"²⁷.

This is best achieved through a master infrastructure plan, with the explicit support of politicians and civil servants, and ideally citizens and the private sector which will strengthen the city government's execution capacity.

Equally important is achieving long-term political support and commitment (if necessary cross-political party). Political uncertainty is amplified in countries where a robust legal framework or ineffective regulation is lacking that could mitigate the likelihood of unexpected changes in project objectives²⁸. Private-sector interest also requires a high degree of certainty that projects will go ahead and will receive political reinforcement.

Focus on emerging market considerations

The steps needed to create these enabling conditions vary notably between developed and emerging economies. For cities in emerging economies, many of the enabling environment factors that hamper private appetite are related to national level macroeconomic, political and economic risks, meaning these cities do not often have the powers to create such enabling environments at the state or municipal levels without national government level action.

With a lower level of financial maturity, these cities should focus on solid foundations from which to build and develop sophisticated financing mechanisms, fiscal and policy frameworks in the future. Initial steps could include:

- How to improve reliability of budgetary planning and processes
- How to own-source revenue generation at local level
- How to demonstrate reliable debt servicing
- Exploring what is required to achieve a formal credit rating
- Engage private sector to understand their needs and risk appetite

Extracted from: Coalition for Urban Transitions

Informational study: Metro Cebu, Philippines

Background

Philippines Metro Cebu is the main urban centre of Cebu Province in the Philippines. It is facing rapid urbanisation across its seven cities and six municipalities, with the population expected to grow to five million by 2050.

Story

To address this urbanisation challenge, the city of Cebu and the Metro Cebu Development and Coordinating Board, along with the Japan International Cooperation Agency (JICA) and the city of Yokohama, worked together to develop a long-term sustainable urban development vision for the city, by engaging the private sector and civil society.

MEGA CEBU Vision 2050 sets out a strategy for city development, striking a balance between comprehensiveness and sectorial priorities. Part of the plan's success can be attributed to widespread stakeholder participation and consultation, supplemented by policy and technical inputs from the private sector and civil society. Prioritising diversified views, a SWOT (strengths, weaknesses, opportunities, threats) analysis and comparative studies, analysing international good practice benchmarks, provided a robust framework for the MEGA CEBU vision.

Benefits delivered

The result of this approach was a city development plan that incorporates urban sustainability, including cultural, economic, social and environmental aspects. The MEGA CEBU Vision also sets out clear strategies and development targets. Action plans and roadmaps are being drafted to support their implementation, assisted by JICA (through technical assistance). The MEGA CEBU Vision set up a mechanism to share best practices among 13 local governments, helping those governments increase their expertise and leading them to take positive action on the ground for the realization of more sustainable and comprehensive urban development.

This informational study was developed based on the International Development Finance Special Interest Group report on Sustainable Urban Development

There are a number of barriers that can impede the capacity of countries and cities to mobilise adequate financing for urban infrastructure and contribute to a lack of investable projects likely to deliver appropriate risk-adjusted returns. Table 1 and 2 below illustrate some of these key barriers to achieving greater private sector participation and possible ways developing country cities and private sectors investors can look to address these challenges. A selection of case studies provide examples of the tools and approaches being used in practice to scale up this collaboration.

Table 1: Lack of capacity and expertise

Barriers	Actions
<p>City governments:</p> <ul style="list-style-type: none">• Lack expertise related to urban infrastructure planning.• Failure to develop bankable urban infrastructure pipelines, secure funding commitments and sufficient guarantees, or manage infrastructure projects effectively.• Growing engagement and awareness of development cooperation providers.• Failure to provide consistent standards for investment procurement processes related to infrastructure projects. It is common for each individual project to have its own tailored bidding process. Such fragmented approaches potentially discourage investment as it is more time- and resource-consuming for investors to assess projects.• Regulatory obstacles and lack of clarity on city-level revenues and fiscal space.	<ul style="list-style-type: none">• Support for project preparation to assist city governments to prepare bankable investment opportunities in urban infrastructure that are attractive to private investors underpinned by thorough assessments covering legal, financial, regulatory, economic, environmental, and social benefits along with appropriate risk allocation among parties – see next section.• Project preparation, including early private sector engagement in project identification, scoping, preparation, structuring and packaging. This can result in more accurate full life-cycle costs, identification of risks and appropriate mitigations, demand forecasting, feasibility and fall back arrangements (particularly applicable when exploring new technologies). These factors increase the attractiveness of a project for

<p>Private sector:</p> <ul style="list-style-type: none"> Limited expertise and experience with municipal infrastructure. Unfamiliarity with local policies and business environments, resulting in extra due diligence and raises transaction costs which deters participation. 	<p>investment and the chances of greater alignment of the outcomes required by the city government and what can be delivered by the private sector.</p> <ul style="list-style-type: none"> Clarity on city / municipal sources of revenues and fiscal space. Publication of city infrastructure plans and pipelines to give investors' confidence - supplemented with guidelines on how the city government selects, prepares and engages the private sector in a transparent manner, and how it will manage the partnership in the long-term. Development of clear and consistent investment regulations and policies. Contract standardisation and consistent procurement processes to streamline the administrative procedures.
---	--

Table 2: Optimising project risk allocation (and lack of data):

Barriers	Actions
<p>The implications of risk allocation are distinct for the public and private sectors. Building a social advantage and maximising value for taxpayer's money is an essential parameter for the former, while ensuring the project is financially viable and has an attractive risk-return ratio is critical for the latter. A lack of clear understanding and/or quantification of the benefits (both directly in the form of revenue or indirectly in the resultant economic activity, environmental and quality of life improvements) and risks of infrastructure projects for both planning and financing purposes are a key impediment to drawing in private sector capital. This is further exacerbated by the absence of quantitative data on the financial and risk performance of infrastructure projects making the investment evaluation process problematic.</p>	
<p>City governments:</p> <ul style="list-style-type: none"> Difficulty in predicting and guaranteeing revenue streams (e.g. public transport, water).²⁹ Lack of transparency in expenditure or project management in local governments increasing the risks of investment. Limited data to assess the success of different financing / funding models used on projects. In developing markets, project-related data required to estimate the full span of costs and benefits of projects is mostly unattainable, making project preparation even more difficult. <p>Private sector:</p> <ul style="list-style-type: none"> Difficult in gaining required level of visibility of cashflows and project progress, thus creating uncertainty related to full recovery of and return on investment. Poor visibility and quantitative evidence of the benefits, therefore cannot evaluate them (and their impact on their return on investment) When looking at sustainable infrastructure projects specifically the limited knowledge of both parties on available clean technologies, their potential advancement, and characteristics mean it is often difficult to incorporate potential technological efficiencies in financial and economic analysis 	<ul style="list-style-type: none"> Well-designed funding models and/or public-private agreements that share risk and rewards between public and private sectors and achieve cash flow characteristics of investors (stable, long-term cash flows) - see next section. Explore innovative charging models or technology-based schemes that allocate the user charges. Adopting a national or regional portfolio approach to achieve economies of scale for financial institutions and large investors who find it difficult to support small projects individually and to diversify the risk. There is a growing recognition that whilst city-level needs are best defined at city level - when comes to drawing in more private investment, the solution may lie in adopting a national / regional portfolio approach. Inclusion of mandatory obligations to disclose the performance data of infrastructure projects. Clear policies for public-private cooperation which explains the roles and objectives each partner needs to adopt.

As outlined above, robust “project preparation” is a key theme as it is critical to increasing the level of private sector infrastructure investment and consequently meeting the investment gap in cities. The IMF reviewed the Public Investment Management framework of 30 countries covering emerging markets, low and middle-income countries and one advanced economy to highlight some critical governance aspects of project preparation and planning. The review highlighted the importance of improvements in competitive procurement, independent review of projects to assess value for money, and the

enabling regulatory environment. The review found that 30 percent of the potential benefits of public investment are lost on average due to inefficiencies in the investment process³⁰.

Informational study: Foz Do Rio Itajaí Bus Rapid Transit (BRT)

Background

The Foz do Rio Itajaí Region, comprising 11 municipalities and located in the State of Santa Catarina, Brazil, is planning a network of five BRT corridors and six priority bus lanes as a key step to delivery of the region's integrated mobility strategic plan. These municipalities currently lack a quality public transportation system with 80% of trips currently performed with private vehicles. The project, in coordination with a reformed parking policy, is expected to reduce congestion and improve air quality by increasing in the share of trips made by public transport which is expected to rise from 10% up to 45% by 2045. There is a big push towards zero emission vehicles, whether hydrogen or battery. GIF is assessing data to quantify the net benefits of zero emission busses versus alternatives such as clean diesel.

Story

GIF and the World Bank will focus support on helping the beneficiary, AMFRI (a not-for-profit entity created in 1973 and includes 11 municipalities of the State of Santa Catarina), assess implementation options and viability- including, engineering, legal issues, environmental and social impacts, and the feasibility of electric buses. GIF is advising the technical partner on stakeholder coordination and how to improve project competitiveness and raise external finance in addition to local sources of finance. GIF is supporting the review of policies and regulations for a financially sustainable business model that is less dependent on limited public resources. This will also be the first PPP in Brazil to be prepared and led by a municipal consortium representing multiple municipalities, each of which acting alone would be too small to make the project financially sustainable.

Benefits delivered

BRTs help reduce emissions by providing a more efficient, less pollutant transport system, reducing the dependency on individual transport and congestion. GIF will use lessons learned from other BRT projects done in Lebanon, Beirut, Senegal, Bangladesh and Cote d'Ivoire to support the implementation of this BRT. Among the challenges that GIF will address based on lessons learned include coordination of different levels of government and addressing regulatory issues, setting up a high-quality, comfortable, reliable and low emissions system that attracts users and promotes shift from other modes of transport; aligning parking and feeder services policies to generate demand, multimodal integration, tariff integration (physical and fare), advancing quickly on environmental licenses processes to reduce risk of implementation delays; and conducting a transparent and service-based concession bidding process that allows for strong competition.

This study was provided by the Global Infrastructure Facility

Cities need to demonstrate how infrastructure will deliver value to both users and investors. Changing times also mean that city governments can no longer plan for what is known today and cities need to be agile in response to changing circumstances and meet the needs of future generations. This requires work in all the areas outlined above to ensure an integrated approach to climate and infrastructure finance policies at all levels of governance. This could include the removal of environmentally harmful subsidies, the implementation of targeted incentives and subsidies, capacity building to support low carbon innovation in order to direct capital towards the areas that will best support the achievement of these goals.

Cities will need to position themselves better to provide confidence to private investors in order to meet their objectives in delivering sustainable infrastructure. As demonstrated in the case studies, some city governments are very successfully engaging with the global and national infrastructure community (investors, operators, owners), leveraging the tools and support through MBDs to develop public-private cooperation in order to achieve this.

The next section explores some of the instruments available to deploy to attract private investment.

Informational study: Yangon City, Myanmar

Background

Yangon City is located in southern Myanmar and has an estimated population of 5.2 million living in 33 townships.

Since the opening up of Myanmar economy in 2011, Yangon City has experienced explosive growth, and as a result, the city's century-old infrastructure creaks under the weight of its rapid transformation. With a growing economy which will consume more power and water, and require strong logistics networks - Yangon will see an increased demand on transport networks and utilities.

Story

The Yangon Regional Government (YRG) is undertaking a programme to transform Yangon City into a vibrant, safe, sustainable and smart city by 2030, through a number of large scale, revolutionary infrastructure investments. YRG, Yangon City Development Committee (YCDC) and the Union Government have taken actions to make Yangon an attractive city for investment:

- **Vision and leadership** – YRG has developed a comprehensive plan to develop the infrastructure Yangon needs for long term economic and population growth. To support this, a YCDC law was passed for the purpose of developing Yangon Region, which strengthens the Region's institutions, increasing its capacity and accelerating the achievement of its development goals.
- **Developing regulatory frameworks and strong governance** – The Government of Myanmar recognises the need for reform and is embarking on a structured program to strengthen and modernise its regulatory and legal frameworks. In 2016, the Government passed the Myanmar Investment Law designed to stimulate and facilitate foreign and domestic investment in the economy, and to provide a more investor-friendly environment, a level playing field and an eased approval process.
- **Fiscal environment** – Like any emerging market a lack of access to capital and debt with high interest rates, a volatile currency and lack of capacity across both government and the private sector are issues that need to be addressed. The Union Government is actively addressing these issues, looking to protect Yangon Region's lower levels of debt which helps it weather volatility in global markets and differentiates it from other investment destinations.
- **Sustainability** – The Myanmar Sustainable Development Plan (MSDP) has been published by the Union Government to build institutional capacity to support a sustainable infrastructure development programme. YRG has designed a specific vision for Yangon that embraces these goals and aims to tackle infrastructure pressure points, cater to the current and future citizens of the region and adopt new and innovative solutions that are scalable, resource efficient and environmentally sustainable.
- **Infrastructure investor roadmap and project pipeline** – The Yangon infrastructure investment plan aims to provide a roadmap of the scale and opportunity for investors, financiers, constructors, and operators. YRG and PwC developed a Project Bank, a master list of 80 infrastructure projects, with the aim of setting out a clear, transparent and prioritised approach to procuring these projects using internationally recognised commercial structures that are economically viable and bankable. Projects will be funded from various sources including budgets allocated from Union Government and YRG, multilateral development banks, overseas development assistance loan packages and private sector funding resources.

Benefits delivered

Sustainable inner city transport

An Integrated Transport Masterplan has been developed and a number of procurements are already underway:

- The Yangon-Pathayin Highway project is being delivered under a build-operate-transfer (BOT) model with local business and Oriental Highway Company, to facilitate more efficient shipment of goods.
- The Yangon Elevated Expressway Project is one of the priority projects of the Union Government and will be carried out through a long-term PPP. With the assistance of IFC Advisory, the Union Government has committed to conduct a fully transparent and competitive procurement process in line with best practice for this Project, with award during 2019

This study was taken from PwC Transforming Yangon, the Heart of Myanmar³¹.

Section 3

Financing infrastructure at the city level

Financing infrastructure at the city level

Funding and finance – key distinctions

Although the terms funding and financing are often used interchangeably, they mean very different things to the investment community. Understanding this difference is an important part of analysing and then communicating the fiscal challenges that cities face and then developing options to address them in a way that attracts investors.

Financing represents the money borrowed which has the effect of time shifting of costs incurred. For example, a city borrows to construct an infrastructure project and doesn't start to repay the loan for five years. In this case, the cost of the project has been time-shifted into the future through financing. However, financing does not set out how the funds to repay the loan will be earned.

In contrast, funding is the means by which the project's costs are repaid, regardless of the period to which these costs are time-shifted. For infrastructure, this generally means identifying the long-term revenue stream necessary to repay the money initially invested.

City infrastructure has traditionally been provided by the public sector out of current fiscal resources. However, this seldom, if ever, meets the full investment need necessitating public borrowing or private partnerships. Both require looking closely at the city or projects ability to repay the borrowings or investment.

In terms of public finance, financing for infrastructure can be raised on the balance sheet of the cities through public borrowing or bond issuances, which are then repaid as a general obligation of the cities out of all of its resources. It is also possible, with additional financial structuring, to raise money at a project level (project finance / specific obligations rather than general) supported by the revenue streams of the project or fixed commitments from the cities. The approach selected depends largely on the credit standing of the cities, the revenue stream of the project and the security requirements of lenders and investors. Public financing sources used by cities have included:

- National governments - National government budgets are generally constrained due to budget deficits and debt levels. As a result spending on infrastructure, some of which occurs within cities, is competing with other national priorities.
- Municipal governments - In some countries there has been a greater responsibility put onto municipal governments to finance infrastructure. Municipal governments often face the same budgetary constraints that national governments do, and in addition, do not often have the fiscal powers to raise additional funding (i.e. through municipal taxes), capacity to collect those taxes, or the ability to access debt or equity markets. This can be a barrier to attracting private finance, as financiers require confidence about how the investment will be repaid via a clear income or revenue model - and this is much more challenging in developing countries.
- Multilateral development banks (MDBs) - MDBs provide public finance for infrastructure as well as technical assistance and other grant funded support. The involvement of an MDB that provides lending or investment to public-private partnerships (PPPs) or private projects can provide credibility to a project and gain investor confidence.

All levels of governments are increasingly seeking to bring in private investment into infrastructure, as public financing alone is not sufficient to address the infrastructure spending deficit and bring transformational development in cities – particularly those in developing economies – to support the challenges presented by urbanisation and climate change.

Broadly speaking, public financing can be used to leverage private financing or if the enabling environment is strong enough, pure private finance is possible.

Risk

Private investment in public infrastructure is increasing as the risk return trade-offs are better understood by the private sector. Private investors assess the risk of the investment thoroughly before investing. Risks assessed include, but are not limited to:

- Revenue / income risk;
- Credit quality of the borrower;
- Land acquisition;
- Construction and operation risks;
- Environmental, social, and climate risks
- Legal and regulatory risks;
- Inflation, interest rate and currency risks; and

- Applicable contractual framework.

If collectively these risks are deemed too high, investors don't invest. One of the key things generally required to attract private capital in to city infrastructure is a clear articulation of the risk allocation between the city and the private investor, codified through legally enforceable contracts. There exists a wide body of knowledge of risks crystallising and resulting in losses as the risks were not properly identified, allocated and mitigated. Recent examples include the management of currency risk on tariffs in public-private undertakings in both the Mexican toll roads and Indian power stations³². New approaches to managing the next generation of project investors and lenders is essential.

Ways of cities raising money for infrastructure

In this section, we discuss three primary ways that cities can look to raise money for urban infrastructure: asset sales and land development; public-private partnerships; and asset monetisation / securitisation. We then illustrate these through examples of specific specialised finance and funding and instruments: green bonds, land value capture and blended finance.

There are other instruments and mechanisms such as guarantees, insurance products as well as carbon-reducing initiatives (e.g. congestion charging) relating to a broader definition of infrastructure (i.e. including social infrastructure) that cities can employ to achieve their infrastructure plan objectives. For the purposes of this paper however, we have focussed only on key approaches for raising money for economic infrastructure.

Asset sales and land development

Cities often own undeveloped land which can be used to raise funds to invest in infrastructure.

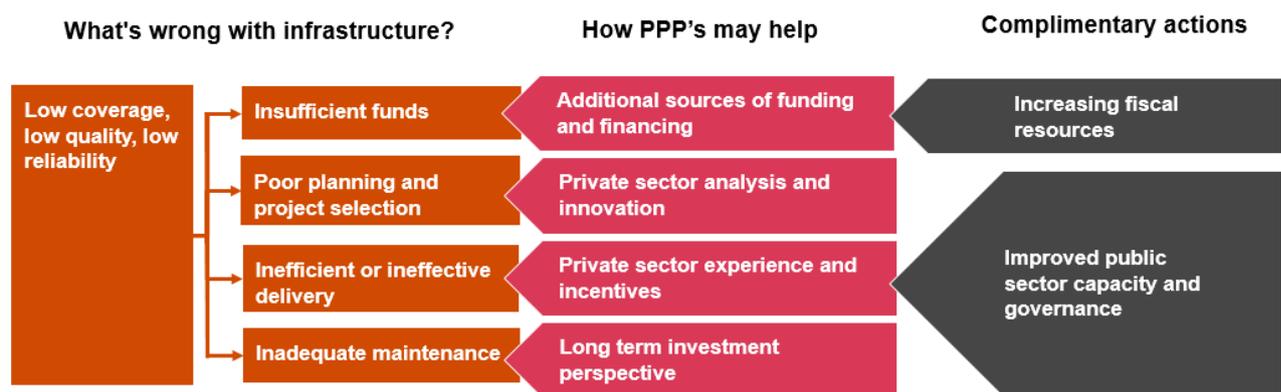
There are various ways of using the land for this purpose including:

- Selling the land outright (upfront capital receipt);
- Leasing the land to the private sector (receipts over time);
- Entering into a joint development agreement with private sector partners where the city provides the land, the private partner finances the development and then both parties share in the profits in a negotiated ratio; and
- Revenue generating - infrastructure assets owned by the city can also be sold on a perpetual or limited life basis to raise money to reinvest in other infrastructure assets or with a contractual obligation to not pay money to the public sector but rather to re-invest in the infrastructure asset to improve public services.

Public-Private Partnerships (PPPs) / Concessions / Build Operate Transfer (BOTs)

PPPs are long-term contracts between a private party and a government entity for providing a public asset or service. PPPs can take different forms; such as PPPs where the private party is paid entirely by service users, or where a government agency makes some or all of the payments. The project functions which are transferred to the private party, (such as design, construction, financing, operations, and maintenance) may also vary from contract to contract, but in all cases the private party is accountable for project performance and bears significant risk and management responsibility. Figure 2 below outlines the benefits of PPP-like structures.

Figure 2 – Benefits of PPP-like structures



Source: Based on World Bank, UN DESA and UN-Habitat data (World Bank: Public-Private Partnerships Reference Guide Version 2.0)

PPP Value Drivers

PPP 'value drivers'³³ are the ways in which PPPs can improve value for money in infrastructure provision. They include the following:

- Whole-of-life costing - full integration (under the responsibility of one party) of up-front design and construction with ongoing service delivery, operation, maintenance and refurbishment, can reduce total project costs. Full integration

incentivises the single party to complete each project function (design, build, operate, maintain) in a way that minimises total costs;

- Risk transfer - risk retained by the Government in owning and operating infrastructure typically carries substantial and often unvalued costs. Allocating some of the risk to a private party which can better manage it can reduce the project's overall cost to government;
- Upfront commitment to adequate maintenance, and predictability and transparency of whole-of-life costs - a PPP requires an upfront commitment to the whole-of-life cost of providing the asset over its lifetime, building in appropriate maintenance. This both provides budgetary predictability over the life of the infrastructure, and reduces the risks of funds not being made available for maintenance after the project is constructed
- Focus on service delivery allows a sponsoring department or agency to enter into a long-term contract for services to be delivered when and as required. Management in the PPP firm is then focused on the service to be delivered without having to consider other objectives or constraints typical in the public sector;
- Innovation - specifying outputs in a contract, rather than prescribing inputs, provides wider opportunity for innovation. Competitive procurement of these contracts incentivises bidders to develop innovative solutions for meeting these specifications;
- Mobilisation of additional funding - charging users for services can bring in more revenue and can sometime be done better or more easily with private operation than in the public sector. Additionally, PPPs can provide alternative sources of financing for infrastructure, where governments face financing constraints; and
- Accountability - government payments are conditional on the private party providing the specified outputs at the agreed quality, quantity, and timeframe. If performance requirements are not met, service payments to the private sector party may be abated.

Informational study: Indonesia Bandung Waste-to-Energy PPP

Background:

Managing waste properly is essential for building sustainable and liveable cities, but it remains a challenge for many developing countries and cities. Effective waste management is expensive, often comprising 20%–50% of municipal budgets. Bandung, capital of Indonesia's West Java province is the third largest city in Indonesia with 2.6 million people. It forms part of the Bandung Metropolitan Area, which has a population of 8.2 million. Population growth, combined with growing per capita incomes and associated changes in consumption patterns, has resulted in much greater demand for municipal solid waste management services. This will represent a major challenge for the West Java Province as current landfill facilities at Sarimukti has reached its full capacity and is to be closed in 2020.

Story:

The project will develop the Legok Nangka regional final waste treatment and processing facility through a public private partnership that will provide final treatment and processing of municipal solid waste from six participating municipalities of the Greater Bandung Area in West Java, Indonesia. JICA has been working on technical design of the waste to energy (WtE) project and International Finance Corporation (IFC) is teaming up with JICA to provide transaction advisory services, which will be supported by GIF. The IFC-JICA tie-up is the first of its kind for PPP advisory, in Indonesia, and there are hopes that this model can be replicated, along with GIF funding. GIF support will enable standardization of project documents, including the PPA, waste supply agreement and PPP agreement, to ensure replicability of the documents in other WtE projects in the country. The GIF will enable IFC-JICA in assessing the technical solutions for the project, financial viability, and assessing the need for viability gap funding. The GIF will share best practices with the project team and government from challenges experienced in WTE projects globally and will sound its Advisory Council on bankability aspects of the project.

Key benefits expected:

A key development impact outcome will be the reduction of GHG emissions (tons of CO₂ amount to be determined at due diligence) resulting from the successful implementation of the Project, and potentially further reductions from the replication of the Project in other parts of Indonesia. The Project is expected to contribute to improved sustainability by supporting the development of one of the first WTE plants in Indonesia, and the first in West Java. The Project, if successfully implemented, will have demonstration effects on solid waste waste-to-energy as a solution for replicable waste treatment while also contributing to the region's renewable energy generation capacity.

This study was provided by Global Infrastructure Facility

Informational study: Uzbekistan Tashkent/Bekabad Solid Waste Management PPP

Background

Cities are at the forefront of tackling the global waste challenge. In line with GIF's Climate Smart thematic objective, this Project aims to upgrade and modernize solid waste collection and management systems in Tashkent and Bekabad cities, reducing carbon emissions and improving air quality and urban environment in the cities. The Government of Uzbekistan (GoU), through the PPP Development Agency (P3DA), aims to overhaul the country's Solid Waste Management (SWM) system to meet increasing demand and avert potentially serious service disruptions. To kick-start this process, the GOU will develop a bundled pilot project in Tashkent and Bekabad cities, involving development of concepts / prefeasibility studies including affordability, PPP suitability and legal and regulatory issues for the whole process of SWM in the two cities on a PPP basis. This is the first joint Asian Development Bank (ADB) and GIF Activity.

Story

This will be the first potential privately -financed waste project involving multiple parts of the values/process chain: collection, transportation, utilization, processing, dumping and management of waste. GIFs funding of the pre-feasibility of the pilot solid waste management PPP will help establish a framework for other IFIs and donors to support similar investments in other cities. The GIF collaboration with ADB will help build stakeholder consensus around issues such as possible adjustment to tariffs, local government planning and implementation capacity and interest in the project from private sector operators.

Benefits expected

Uncollected waste and poorly disposed waste have significant health and environmental impacts. Greenhouse gasses from waste are also a key contributor to climate change. In 2016, 5% of global emissions were generated from solid waste management. The cost of addressing these impacts is many times higher than the cost of developing and operating simple, adequate waste management systems. In partnership with ADB GIF will support the GoU in preparing the concept and deliverables to lay a foundation for the project to be implemented as a PPP. Lessons learned through the GIF's collaboration with ADB will be a platform for knowledge sharing and cooperation amongst multilateral development banks.

This study was provided by Global Infrastructure Facility

Asset monetisation / securitisation

If the city has infrastructure assets generating stable cashflows or is able to improve tariffs such as road tolls, water charges, land based charges etc. on new infrastructure, one option is for the city to monetise that income through a forward sale of the revenue to investors - in return for an upfront lump sum. For example, Dubai monetised its road tolls in this way³⁴. The forward sale of cash flows is different to asset sales outlined earlier, as in this case only the cash flows are sold.

Specialised finance and funding

As an illustration of these three primary ways that cities can raise money for urban infrastructure, the examples below include specific specialised finance and funding and instruments that cities can deploy.

Green bonds

Cities could benefit from new and innovative financial instruments such as green bonds. Green bonds are fixed-income securities that governments (national and in some cases municipal) can issue to raise capital for a project that contributes to a low-carbon, climate-resilient economy.

Green bonds can be particularly attractive to institutional investors seeking to increase their participation in green infrastructure investment. Many of these make large allocations to green bonds within their investment portfolios. Issuance of bonds aligned with global climate targets needs to continue to grow to meet the full set of SDGs. The UN's Mission 2020 initiative calls for US\$ 1 trillion of annual green bond issuance by 2020³⁵.

The OECD has called for common standards and issuing principles which are essential for growing bond markets and ensuring that green bond investments address climate change. Progress is being made on this front by organisations such as the Climate Bonds Initiative with their Climate Bonds Standard and the Green Bond Principles overseen by the International Capital Markets Association.

Recent estimates by the World Bank show that less than 20% of the largest 500 cities in developing countries are deemed creditworthy in their local context, severely constricting cities' capacity to finance investments in infrastructure and raise municipal or green bonds³⁶. To access the green bond market, cities need to improve their credit rating and demonstrate their ability to repay, as well as improved governance and procedures which are aligning to the emerging standards referred to above. Cities should also set expectations on how they will manage and monitor and evidence that the investment has been made for purposes raised (i.e. green washing).

Informational study: The World Bank City Creditworthiness Initiative

The World Bank has developed the City Creditworthiness Initiative to provide local authorities with comprehensive support and help them:

- Achieve higher creditworthiness by strengthening financial performance;
- Develop an enabling legal and regulatory, institutional, and policy framework for responsible sub-national borrowing through reforms at the national level;
- Improve the “demand” side of financing by developing sound, climate-smart projects that foster green growth;
- Improve the “supply” side of financing by engaging with private sector investors.

The City Creditworthiness Initiative is comprised of two primary components:

- City Creditworthiness Academies are learning programs that teach city leaders the fundamentals of creditworthiness and municipal finance; and
 - City Creditworthiness Implementation Programs, which are in-depth, multi-year, technical assistance programs to help cities prepare for, structure, and close market-based financing transactions for climate-smart infrastructure projects.
-

Informational study: Johannesburg Green Municipal Bond

Background

Johannesburg issued Africa's first municipal green bond to raise funds for emission-reducing projects. The Green Bond worth ZAR1.5bn (approx. US\$ 143m) was issued in June 2014, and is funding projects across a range of sectors including biogas energy, solar power, and sustainable transportation (e.g. 150 new dual fuel buses and converting 30 buses to biogas).

Story

The Green Bond has provided the city with a new funding source to improve and expedite the implementation of its climate change mitigation strategy and move Johannesburg towards low carbon infrastructure, whilst receiving a market-related financial return.

Johannesburg had political leadership that was supportive of exploring innovative mechanisms to finance upcoming “green” projects. In addition, the city's investment-grade credit rating helped them take the bond to market and for it to receive a very positive response. The city also benefited from international guidance, such as from the Green City Bonds Coalition, which in cooperation with C40 published the specialist Green Muni Bonds Playbook.

Benefits delivered

The use of Green Bonds to finance low carbon buses (and green projects more broadly) offers the opportunity for creditworthy cities to access large-scale, debt finance to introduce clean buses into their bus rapid transit fleets. The cost of finance will depend on the structure of the bond and the creditworthiness of the project or the issuer, but is generally a competitively priced source of long-term finance. It also offers cities the opportunity to grow and diversify their investor base, increase collaboration between city environment and finance departments, and publicly highlight a city's long-term commitment to sustainable development.

This study is taken from C40 Cities - https://www.c40.org/case_studies/c40-good-practice-guides-johannesburg-green-bond

Land Value Capture

Land is a fundamental asset that underpins the wealth of cities, but a dysfunctional land system can instead be a binding constraint to urban economic development. Ownership and control of land has major implications for the way cities can develop and distribute wealth. Land Value Capture (LVC) could be an important tool for funding city infrastructure but is often underutilised as a funding and financing instrument. LVC is based on the principle that private landowners and buildings

benefit from public investments in infrastructure. For example, landowners who have good access to a new railway station are likely to see an uplift in the market value of their land and buildings (where relevant). LVC can help cities to generate revenues for transport infrastructure, both for the initial investment and long-term operation and maintenance, while also promoting compact and transport-oriented urban development. This can be done either by taxing the increased value of land due to public spending on the infrastructure servicing it, or through specific levies designed to recover the costs of infrastructure.

A similar example is betterment levies, which are taxes that are collected from property owners in a designated area of infrastructure improvement. This instrument can help to recover the cost of infrastructure after it has been built but can also fund expansion or upgrading.

For example, Colombia established *contribución de valorización* (betterment levy) in the early 1990s³⁷. Since then, they have contributed significantly to the financing of infrastructure in Bogotá, including funding about US\$ 1 billion worth of public works between 1997 and 2007, and almost half of the arterial road network in the city,⁶⁹ where the bus lines and dedicated stations of the city's BRT system are located. Over the last few years, Bogotá has simplified the betterment levy into a general infrastructure tax by collecting a citywide 'valorisation fee' to finance urban infrastructure improvements.

The effectiveness of LVC is strongly influenced by local context and in developing cities in particular, there is limited knowledge, technical capability and standardisation to implement LVC. For this instrument to be effective, city governments will need systems, capacity and capability in place to collect taxes, undertake detailed assessments with good data, and be able to communicate clearly the potential economic and environmental benefits of any infrastructure project to property owners.

Informational study: Cali Commuter Rail Project

Background

The Municipality of Cali and the State of Valle del Cauca have requested GIF assistance, in coordination with the World Bank, to support the feasibility of a commuter-light rail project (200,000 trips per day; 2025) that will extend the coverage of quality public transport across the city, with the satellite municipalities of Yumbo, Jamundí and Palmira, and eventually the airport.

Story

The GIF is undertaking a Project Readiness Assessment of this project's pre-feasibility studies to identify any further work required in order to allow for delivery of a successful PPP. In addition, GIF will identify and provide strategic level advice on potential additional revenue sources, to the project or to government, that could reduce/offset the likely subsidy needed. This additional non-tariff revenue will come from the accessibility benefits brought by the project and capitalized in land values on adjacent properties to be potentially integrated in the transaction model to be evaluated in the form of integrated urban (re)development and transit provision PPP model.

Benefits

The project will complement the now operating bus rapid transit system of Cali, with an aim at easing congestion in the city and reducing the use of motorised personal-vehicle trips by offering more sustainable and convenient public transport options. The project is expected to contribute to an average reduction of 30,500 tons of CO₂ per year.

This study was provided by Global Infrastructure Facility

Blended finance

With investment in developing markets hampered by perceived and real risks, and inefficiencies we believe there is a growing need to mitigate these risks in a way that will unlock private resources. One such form of public-private cooperation aimed at doing this is blended finance. The OECD defines this as "*the use of development finance and philanthropic resources to mobilise private capital at scale so as to deliver risk-adjusted returns and economic progress across a range of sectors and countries while ensuring significant development outcomes*". This financing model seeks to remove the bottlenecks through three key functions³⁸:

1. Leveraging capital by reducing risks and guaranteeing investments, or by supplementing private investment with grant financing to create incentives for the private sector;
2. Enhancing impact by bringing into play skillsets, knowledge and resources dedicated to development; and/or
3. Increasing returns in line with expectations by helping to improve the investment climate in key markets

This is typically achieved by providing flexible capital via instruments such as grants, guarantees, flexible (concessional) debt or equity and / or through providing support in improving the local investment climate, specialise advisory services or local expertise to bridge knowledge gaps on transactions.

It should be noted that blended finance is not intended to replace / reduce development assistance and financial sector participation in transactions, nor should it subsidise private investors unnecessarily. Instead, it is implemented by MDBs in specific circumstances to encourage investment by facilitating risk-taking to an acceptable level.

Informational study: Malaysian Green Technology Corporation (GreenTech Malaysia)

Background

The Malaysian Green Technology Corporation (GreenTech Malaysia) is an organisation under the purview of the Ministry of Energy, Green Technology and Water, Malaysia (KeTTHA), charged with catalysing green technology deployment as a strategic engine for socio-economic growth in Malaysia in line with the National Green Technology Policy 2009. GreenTech Malaysia is focused on meeting the objectives of the Malaysian National Green Technology Policy 2009 by:

- Developing sustainable and widespread green technology markets
- Strengthening the local green technology industry
- Enhancing human competency and capacity in green technology applications
- Formulating support policies and financing frameworks to promote green technology growth
- Promoting and creating awareness of green technologies

These initiatives are carried out through GreenTech Malaysia's four key Flagship Projects, namely, Green Malaysia Plan, Green Procurement, Electric Mobility and Sustainable Living, across five key sectors, which are Energy, Transport, Building, Waste Management and Water Management.

Story

In 2010, the Malaysian Government introduced the Green Technology Financing Scheme (GTFS), administered by GreenTech Malaysia to fund green technology related ventures providing easier access to financing from the market. The Scheme was initially set to last through 2015 and was extended first through 2017 and again through 2022. These extensions reflect the Government's commitment to pursuing the development of the green technology sector for the nation's socio-economic growth. The loan guarantee scheme offers a rebate of 2% per annum on interest or profit rates charged by financial institutions while also providing a Government guarantee of 60% for the green cost of the financed amount. The GTFS extension through 2022 included approval that an addition MYR 5 billion (US\$ 1.2 billion) of loans may be approved through the scheme, on top of the MYR 3.5 billion (US\$ 814 million) already approved.

As the nation's lead catalyst for green technology, GreenTech Malaysia plays a determining role by continuing to introduce feasible financial mechanisms to support green growth scaling up investments. One of its latest initiatives is the setting up of a subsidiary, GreenTech Catalyst Sdn Bhd (GreenTech Catalyst) with a mission to stimulate and create an environment that generate and accelerate green investments and trade. While given the task to manage the GTFS, GreenTech Catalyst has also recently, formed a strategic alliance with a financial institution in establishing the Energy Efficiency Financing Scheme that provides funding to Energy Service Providers that have secured Energy Performance Contracts.

Impact

Since the inception of the GTFS in 2010, as of October 2017, the GTFS has successfully approved a total of 315 projects with a total cost of nearly US\$ 1.7 billion. The amount of loans that have been approved under the scheme is US\$ 829 million. The bulk of projects approved are in the renewable energy sector. The approved projects are anticipated to contribute to the avoidance of over 3.7 million tonnes of CO2 equivalent every year and create a more than 5,200 green jobs. The GTFS has been instrumental in encouraging the participation of private financial institutions to invest in green ventures, as it has brought together a total of 28 banks and financial institutions to participate in the scheme. With increasing numbers of entrepreneurs venturing into the green technology sector, GTFS will continue to be an important enabler bridging financing gaps and empowering emerging green businesses in the country.

This informational study has been taken from : <https://greenbanknetwork.org/members/>

As outlined in this section there exists a range of tools available to catalyse private finance. The applicability depends on the context of the specific projects / plans city governments are looking to implement.

Section 4

Conclusions - Key considerations for cities and investors

Conclusions - Key considerations for cities and investors

There are no easy answers when examining the ways of boosting private finance in cities in developing countries, but it is clear it has a valuable role to play in meeting global low-carbon, climate-resilient infrastructure ambitions. Banks and institutions can provide the upfront capital investment to finance the infrastructure, but the cities and governments need to support in generating the predictable revenue streams in order to support this financing.

Key considerations for cities to increase private sector participation in sustainable infrastructure	Key considerations for investors to invest in city infrastructure ³⁹
<p><i>Are the conditions that investors use to assess the suitability and sustainability of investments in place?</i></p> <ul style="list-style-type: none"> • Robust fiscal systems in place to manage and monitor spending levels, tax rates, and liabilities with respect to financing instruments? • A credit rating high enough to attract financing from capital markets, and the capacity to plan large capital projects, currency risk, and interest rate volatility? • The appropriate regulatory, legislative and policy regime in place to inspire investor confidence in project feasibility and viability? • A strong institutional framework which clearly articulates roles and distinct responsibilities between the public and private sectors? • Sufficient institutional capacity to implement plans for example, financial, legal, project preparation and procurement capacity? Capacity to advance project development in a more streamlined and cohesive manner? • A city vision and strong leadership in place, including an infrastructure plan which has the explicit long-term support of politicians, civil servants, and ideally citizens and the private sector? • A pipeline of investable projects that are economically, socially and environmentally sustainable and provide an acceptable return level? • The regulatory and fiscal frameworks in place, together with the skills, capacity and experience needed to structure and implement a financing instrument (such as asset sales, PPPs and asset monetisation / securitisation). <p>To give private sector investors a high degree of certainty that projects will go ahead and that anticipated cashflows will be realised, can the following be demonstrated in the city's project opportunities:</p> <ul style="list-style-type: none"> • Leadership equipped with sufficient authority, decision-making power to lead a sustainable urban development agenda and planning process? • Standardised investment procurement processes to minimise resource requirements for private sector, but with sufficient flexibility built in for project / sector specific requirements? • Objective, robust city governance procedures and vehicles to act as a focal point for investors to partner with? 	<p><i>Investing in sustainable infrastructure in cities provides opportunities for some investors to move to a low-carbon economy on their portfolios. However, questions for investors to ask themselves when looking to invest in cities are:</i></p> <ul style="list-style-type: none"> • Is there a clear, well formulated and articulated vision for the infrastructure development proposed with buy-in from key stakeholders including the public? • How does the city's institutional and governance framework measure up and is it stable? Does the city have mature and robust legislation for investment? Is the framework sufficiently clear in terms of roles and responsibilities? • Is there a single, stable vehicle representing the city as a whole and with the ability to contract? • How is the city supported? What is the legal, economic and political relationship between the city and the national government? Is there a clear obligation for the national government to provide fiscal support, if required? • What do the credit rating agencies say about this city's investment grade? What are the economic fundamentals of the city? How large is its debt burden and does it have sufficient liquidity? • Are city revenues predictable? Does the city retain fiscal flexibility to change charges/taxes and are such changes capable in a politically acceptable manner? • Is there a strong pipeline of investable projects with the appropriate resources from the city government to deliver? • Is there a track record of success? And a willingness from the city to put in upfront investment as a sign of public commitment to the project? • Are repayment sources clear? What risks will we be taking on? And are the returns worth it? • Are the legal, governance and regulatory systems in place to ensure our investment is protected and that we can get a return on it? • Is there a track record of successfully capturing value for investors in projects? • Is there evidence of early private sector engagement in project identification, scoping, preparation, structuring and packaging?

- Project risks understood including revenue / income risks, land acquisition risks, construction risks, legal risks and inflation risks?
- Clear policies for public-private cooperation which explains the roles and objectives each partner needs to adopt?
- Integrated planning and a robust business cases that make a clear case for investment including evidence of a thorough assessment covering legal, financial, regulatory, economic, environmental, and social benefits?
- Well-designed funding models and financial instruments, and/or public-private agreements that share risk and rewards between public and private sectors?





About PwC

At PwC, our purpose is to build trust in society and solve important problems. We're a network of firms in 157 countries with over 276,000 people who are committed to delivering quality in assurance, advisory and tax services. Find out more and tell us what matters to you by visiting us at www.pwc.com.

Richard Abadie

Global Leader, Capital Projects & Infrastructure, PricewaterhouseCoopers International Limited
Richard.Abadie@pwc.com

Jennifer Brake

Director, Capital Projects & Infrastructure, PwC UK
Jennifer.Brake@pwc.com

Yvonne Welsh

Senior Manager, Capital Projects & Infrastructure, PwC UK
Yvonne.p.Welsh@pwc.com



About the Global Infrastructure Facility

The Global Infrastructure Facility supports end-to-end transaction advisory services to governments in emerging markets and developing economies to build pipelines of bankable, sustainable infrastructure programmes and projects that are attractive to private capital. As a global collaboration platform, the GIF partnership connects governments, multilateral development banks, private sector investors and financiers, and other infrastructure stakeholders to deliver climate-smart and trade-enabling infrastructure in emerging markets and developing economies.

Jason Lu

Head, Global Infrastructure Facility
zlu@worldbank.org

Lori Kerr

Senior Infrastructure Finance Specialist, Global Infrastructure Facility
lkerr@worldbank.org

Zanele Hlatshwayo

Infrastructure Specialist, Global Infrastructure Facility
zhatshwayo@worldbank.org

References:

- Abadie R., Alexander, J, Tanda M., PwC: Investor Ready Cities, 2016, <https://www.pwc.com/gx/en/psrc/publications/assets/pwc-investor-ready-cities-v1.pdf>
- Ahmad, E., Dowling, D., Chan, D., Colenbrander, S., Godfrey, N. 2019. Scaling up investment for sustainable urban infrastructure: A guide to national and subnational reform. Coalition for Urban Transitions. London and Washington, DC. Available at: https://newclimateeconomy.report/workingpapers/wp-content/uploads/sites/5/2019/04/CUT2019_Scaling_up_investment_for_sustainable_urban_infrastructure.pdf
- Klein A., Widge V., Maheshwari A.Malik A. IFC:- Climate Investment Opportunities in Cities, 2018: <https://www.ifc.org/wps/wcm/connect/875afb8f-de49-460e-a66a-dd2664452840/201811-CIOC-IFC-Analysis.pdf?MOD=AJPERES&CVID=mthPzYg>
- Corona G., Titmus J., AMP : The growing role of ESG in infrastructure, 2018. https://www.ampcapital.com/content/dam/capital/04-articles/other-publications/2019/files/2019_ESG_WP_Growing-role-of-ESG-in-infra_v6.pdf
- Raymond P., Galal H., Quinn R., de Haas E. Noda Y. PwC : City of Opportunity, 2016. [https://www.pwc.com/us/en/cities-of-opportunity-7-report.pdf](https://www.pwc.com/us/en/cities-of-opportunity/2016/cities-of-opportunity-7-report.pdf)
- Unnamed author, OECD: Cities and Climate Change - National governments enabling local action, 2014. <https://www.oecd.org/env/cc/Cities-and-climate-change-2014-Policy-Perspectives-Final-web.pdf>
- Unnamed author , 100RC: Resilient Cities, Resilient Lives, 2019. <http://www.100resilientcities.org/wp-content/uploads/2019/07/100RC-Report-Capstone-PDF.pdf>
- Paris Agreement: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
- Smith J., Clayton E., Hanson D. PwC: Building sustainable, inclusive transportation systems 2017. <https://www.strategyand.pwc.com/gx/en/reports/building-sustainable-inclusive-transportation-systems.pdf>
- Unnamed author, World Bank - Green Bonds 2018 report, 2018 <http://pubdocs.worldbank.org/en/632251542641579226/report-impact-green-bond-2018.pdf>
- Unnamed author, Joint MDB IDFC technical paper, 2019. A Framework for Climate Resilience Metrics in Financing Operations <https://www.isdb.org/sites/default/files/media/documents/2019-12/A%20Framework%20forClimate%20Resilience%20Metrics%20in%20Financing%20Operations.pdf>
- Several contributors, WEF & PwC: Harnessing Public-Private Cooperation to Deliver the New Urban Agenda, 2017 http://www3.weforum.org/docs/WEF_Harnessing_Public-Private_Cooperation_to_Deliver_the_New_Urban_Agenda_2017.pdf

Endnotes:

¹ The New Climate Economy, Seizing the Global Opportunity, 2015 - <http://newclimateeconomy.report/2015/>

² UN Department of Economic and Social Affairs -2018 Revision of World Urbanization Prospect

³ PwC and WEF : http://www3.weforum.org/docs/WEF_Harnessing_PublicPrivate_Cooperation_to_Deliver_the_New_Urban_Agenda_2017.pdf

⁴ Gaspar V.; Amaglobeli D.; Garcia-Escribano M.; Prady D; Soto M, Fiscal Policy and Development: Human, Social, and Physical Investments for the SDG, IMF, 2019. <https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2019/01/18/Fiscal-Policy-and-Development-Human-Social-and-Physical-Investments-for-the-SDGs-46444>

⁵ Hallegatte S., Rentschler J., Rozenberg J., Lifelines: The Resilient Infrastructure Opportunity, World Bank, 2019. <https://www.worldbank.org/en/news/infographic/2019/06/17/lifelines-the-resilient-infrastructure-opportunity>

⁶ OECD, Pension Funds in Figures, 2019 <https://www.oecd.org/pensions/private-pensions/Pension-Funds-in-Figures-2019.pdf> and OECD, Progress on mobilising institutional investment for sustainable infrastructure, 2018 <http://unepinquiry.org/wp->

content/uploads/2018/11/OECD_Progress_Update_On_Approaches_to_Mobilising_Institutional_Investment_for_Sustainable_Infrastructure.pdf

⁷ According to the 2017 OECD report Investing in Climate, Investing in Growth, investment needs for infrastructure are estimated to be around USD 6.3 trillion annually between 2016 and 2030. Taking into account the additional needs to reach a well-below 2°C temperature goal, the estimate increases by 10% to USD 6.9 trillion

⁸ C40 cities, 2019- https://www.c40.org/why_cities

⁹ At least one in four urban citizens around the world lacks basic amenities such as decent housing or access to improved water or sanitation (UN Water for life - Water and cities, 2014 - https://www.un.org/waterforlifedecade/water_cities.shtml)

¹⁰ IFC, Climate Investment Opportunities in Cities: An IFC Analysis. 2018.

¹¹ The United Nations Global Action Tracker shows that over 9,000 cities are between them taking more than 20,000 individual and cooperative actions to address climate change. And as part of the Paris Agreement, more than 400 mayors and city leaders committed to achieving the equivalent of 3.7 gigatons reduction of urban greenhouse-gas emissions annually by 2030.

¹² PwC WEF Harnessing Public-Private Cooperation to Deliver the New Urban Agenda http://www3.weforum.org/docs/WEF_Harnessing_Public-Private_Cooperation_to_Deliver_the_New_Urban_Agenda_2017.pdf

¹³ Abadie R., Alexander, J, Tanda M., PwC: Investor Ready Cities, 2016, <https://www.pwc.com/gx/en/psrc/publications/assets/pwc-investor-ready-cities-v1.pdf>

¹⁴ Abadie R., Alexander, J, Tanda M., PwC: Investor Ready Cities, 2016, <https://www.pwc.com/gx/en/psrc/publications/assets/pwc-investor-ready-cities-v1.pdf>

¹⁵ Source: Preqin Global Infrastructure report 2019 and Investor Interviews, 2018

¹⁶ World Bank PPP database - <https://ppi.worldbank.org/en/ppi>

¹⁷ E.g. China has set policies and incentives including tax credits and fiscal support such as 'green credits' for the development of infrastructure projects, leading to a more sustainable and cleaner environment. In Japan, the government provides 'feed-in tariffs' and tax deduction (up to 7%) to stimulate investment in renewable energy. (Preqin Investor Report 2019)

¹⁸ In a recent PwC survey of private equity 67% of our respondents say they've identified and prioritised SDGs that are relevant to their investments (compared to 38% in 2016) and 43% have adopted a proactive approach to monitoring and reporting portfolio company performance against the SDGs (compared to 16% in 2016). Australian-based NAB have recently released NAB SDG Green Bond Framework, which advises that it will seek Climate Bonds Certification for future issuances to ensure alignment and best practice

¹⁹ Task Force on Climate-related Financial Disclosures - <https://www.fsb-tcfd.org/>

²⁰ UN SDGs - <https://www.un.org/sustainabledevelopment/>

²¹ Infrastructure investor – "Meridiam and Rockefeller to launch resilience fund, exclusive" 2019 <https://www.infrastructureinvestor.com/meridiam-rockefeller-foundation-launch-resilience-fund-exclusive/>

²² Ahmad, E., Dowling, D., Chan, D., Colenbrander, S., Godfrey, N. 2019. Scaling up investment for sustainable urban infrastructure: A guide to national and subnational reform. Coalition for Urban Transitions. London and Washington, DC. Available at: https://newclimateeconomy.report/workingpapers/wp-content/uploads/sites/5/2019/04/CUT2019_Scaling_up_investment_for_sustainable_urban_infrastructure.pdf

²³ Abadie R., Alexander, J, Tanda M., PwC: Investor Ready Cities, 2016, <https://www.pwc.com/gx/en/psrc/publications/assets/pwc-investor-ready-cities-v1.pdf>

²⁴ City Creditworthiness Initiative: A Partnership to Deliver Municipal Finance

<https://www.worldbank.org/en/topic/urbandevelopment/brief/city-creditworthiness-initiative>

²⁵ Mega city is a city with more than 10 million inhabitants

²⁶ Coalition for Urban Transitions: Financing the Urban Transition for Sustainable Development: Better Finance for Better Cities

²⁷ PwC WEF Harnessing Public-Private Cooperation to Deliver the New Urban Agenda
http://www3.weforum.org/docs/WEF_Harnessing_Public-Private_Cooperation_to_Deliver_the_New_Urban_Agenda_2017.pdf

²⁸ PwC WEF Harnessing Public-Private Cooperation to Deliver the New Urban Agenda
http://www3.weforum.org/docs/WEF_Harnessing_Public-Private_Cooperation_to_Deliver_the_New_Urban_Agenda_2017.pdf

²⁹ In some sub-Saharan countries, for example, up to 70% of water is unmetered or stolen, generating no revenue at all. (Coalition for Urban Transitions: Financing the Urban Transition for Sustainable Development: Better Finance for Better Cities)

³⁰ IMF, Public Investment Management Assessment - Review and Update, 2018.

³¹ PwC, Transforming Yangon, 2019. <https://www.pwc.com/mm/en/publications/assets/transforming-yangon.pdf>

³² Harris C., Private Participation in Infrastructure in Developing countries – Trends Impacts and Policy Lessons, World Bank Working Paper, 2003 - <http://documents.worldbank.org/curated/en/877581468762634492/Private-participation-in-infrastructure-in-developing-countries-trends-impacts-and-policy-lessons>

³³ Public-Private Partnerships Reference Guide, World Bank, 2014.
<http://documents.worldbank.org/curated/en/600511468336720455/pdf/903840PPP0Refe0Box385311B000PUBLIC0.pdf>

³⁴ Infrastructure Investor article – Dubai completes \$800m road tolls monetisation, 2011 -
<https://www.infrastructureinvestor.com/dubai-completes-800m-road-tolls-monetisation/>

³⁵ Mission Global 2020 website : <https://mission2020.global/clean-energy-economy/>

³⁶ City Creditworthiness Initiative: A Partnership to Deliver Municipal Finance, World Bank.
<https://www.worldbank.org/en/topic/urbandevelopment/brief/city-creditworthiness-initiative>

³⁷ Barrero Ochoa O, Betterment levy in Colombia, Lincoln Institute of Land Policy, 2011 -
<https://www.lincolninst.edu/publications/articles/betterment-levy-colombia>

³⁸ Development Co-operation Report, OECD, 2016. <https://www.oecd-ilibrary.org/docserver/dcr-2016-9-en.pdf?expires=1571053286&id=id&accname=guest&checksum=AF2E206E023EA5548A265FF045C682A6>

³⁹ Abadie R., Alexander, J, Tanda M., PwC: Investor Ready Cities, 2016, <https://www.pwc.com/gx/en/psrc/publications/assets/pwc-investor-ready-cities-v1.pdf>

This publication has been prepared for general guidance on matters of interest only, and does not constitute professional advice. You should not act upon the information contained in this publication without obtaining specific professional advice. No representation or warranty (express or implied) is given as to the accuracy or completeness of the information contained in this publication, and, to the extent permitted by law, PwC does not accept or assume any liability, responsibility or duty of care for any consequences of you or anyone else acting, or refraining to act, in reliance on the information contained in this publication or for any decision based on it.

© 2019 PricewaterhouseCoopers LLP. All rights reserved. PwC refers to the UK member firm, and may sometimes refer to the PwC network. Each member firm is a separate legal entity. Please see www.pwc.com/structure for further details.