天津外国语大学(天外)
Tianjin Foreign Studies University (TFSU)

Geoeconomics & Regional Development

Online class starts at 08:00

(Beijing Time, GMT+8)

Ivan Monich, PhD

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Source: https://pixabay.com/photos/tianjin-sunset-city-aerial-view-2185510/

G20-OECD Policy Toolkit to Mobilise Funding and Financing for Inclusive and Quality Infrastructure Investment in Regions and Cities

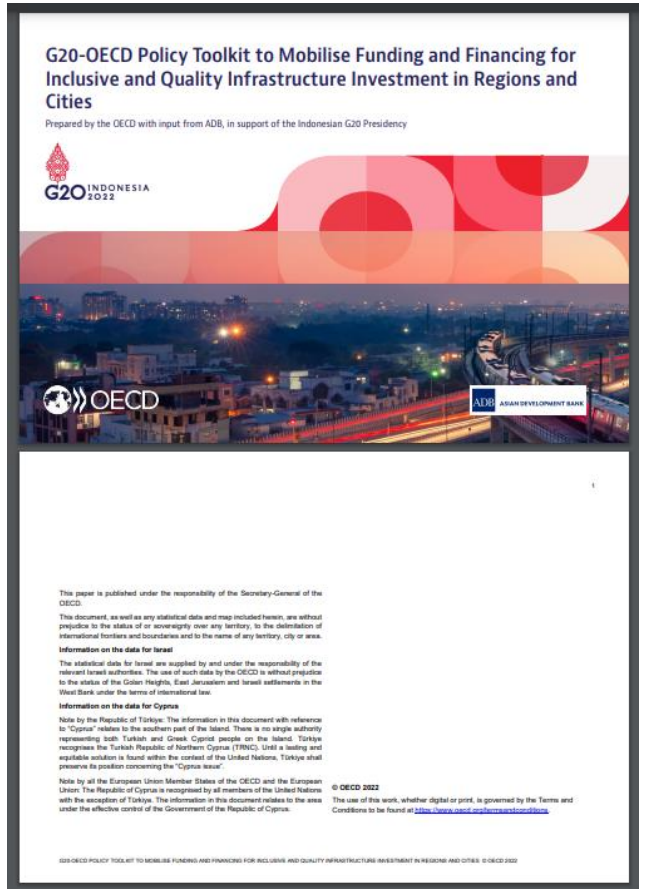
ADB ASIAN DEVELOPMENT BANK

Over the coming years, many regions and cities will need significant infrastructure investment to sustain economic growth and improve well-being. Yet, infrastructure investment needs and priorities are not evenly distributed across regions and cities. Many urban areas will need substantial investments in new sustainable and resilient infrastructure to accommodate an additional 1.5 billion inhabitants by 2050.

Meanwhile, rural areas will also need investment to build sustainability, increase resilience, and improve well-being in the face of demographic change, climate change and the digital transition. Meeting the specific and interdependent infrastructure needs of each region and city in the face of these challenges is critical for inclusion and to meet the Sustainable Development Goals (SDGs).

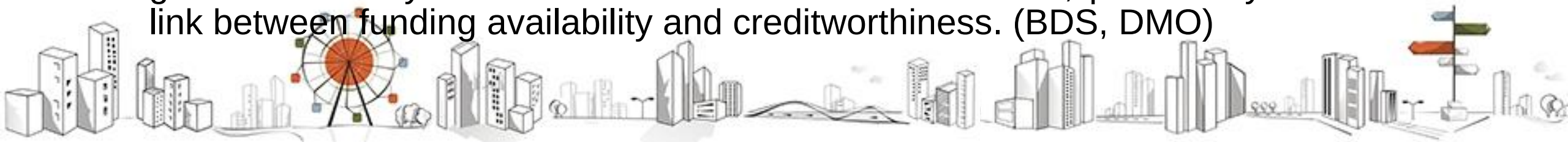
Introduction

- Subnational (state, regional and local) governments have a key role to provide the infrastructure that supports economic development, alleviates poverty, helps to address climate change and improves well-being in regions and cities. In G20 countries, these governments are responsible for almost 60% of total public investment.
- This means that supporting subnational governments to better undertake infrastructure investment can help to meet investment needs in regions and cities and addressing territorial disparities. Supporting subnational government investment requires getting the right enabling environment in place and unlocking funding and financing for investment.



Introduction

- Creating an **enabling environment** for subnational government investment is critical to mobilise funding and financing in regions and cities. The enabling environment refers, firstly, to the fiscal and regulatory frameworks that support or enable the use of funding or financing. It also refers to having access to suitable financial markets (for accessing loans and bonds), as well as adequate institutional capacity to leverage funding and financing effectively.
- **Unlocking funding** for inclusive and quality subnational infrastructure can be supported by better exploiting grants and subsidies, mobilising targeted taxes, implementing user charges and fees, harnessing land value capture and better managing existing infrastructure assets. While the management of assets may not unlock 'additional' funding, it can increase available funding for new investments over the long-term. Without sufficient funding sources, a subnational government may have lower access to external finance, particularly due to the link between funding availability and creditworthiness. (BDS, DMO)



Introduction

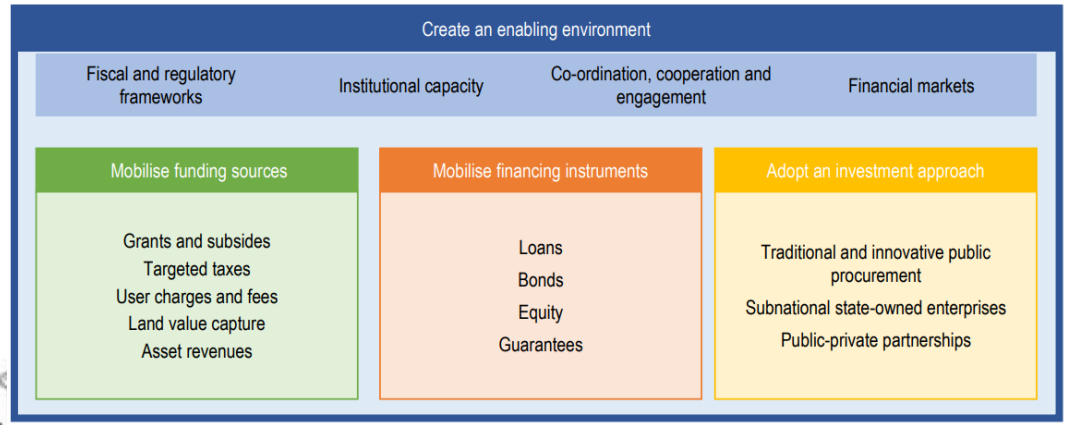
Mobilising finance is essential to help subnational governments meet the high up-front costs of infrastructure investment and to spread those costs across the future beneficiaries of an investment. Opportunities for subnational governments to mobilise external financing mainly relate to the use of debt (loans and bonds), but equity also often supports subnational government infrastructure investment. More innovative financing instruments harnessed by subnational governments include the use of green, social, climate and sustainability bonds or loans.

Introduction

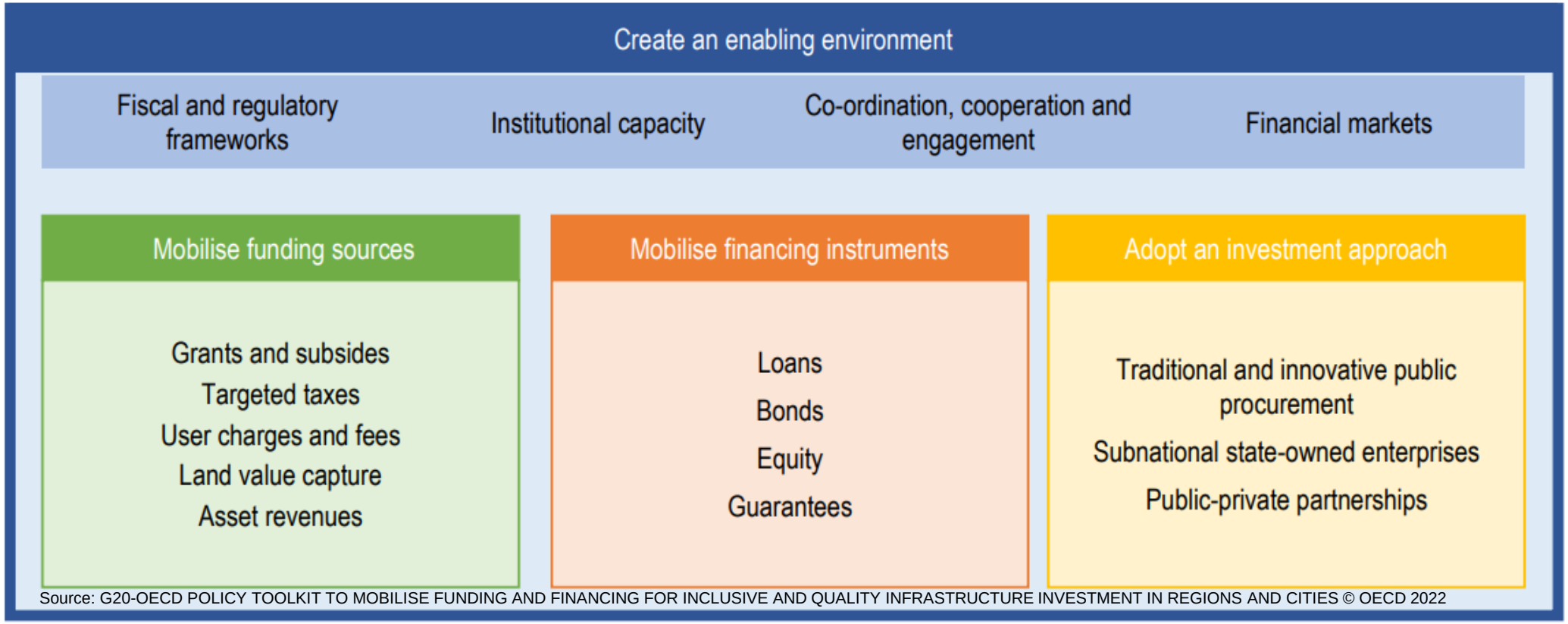
- Regions and cities can also explore different investment approaches to mobilise funding and financing. When delivering an investment, a subnational government might evaluation different options, including traditional and more innovative public procurement of infrastructure, the use of a public-private partnership or harnessing a state-owned enterprise (e.g., a municipal company). To support more inclusive investment, they may also explore the use of different procurement innovations such as adopting green or social procurement.

What can be done to mobilise funding and financing for subnational infrastructure investment?

Supporting inclusive and quality infrastructure investment in regions and cities is the responsibility of all levels of government. This detailed Policy Toolkit presents a list of potential tools to support this objective, with concrete examples included for inspiration (Annex A) and additional resources to support inclusive and quality infrastructure investment (Annex B). The diagram below illustrates the key components covered in this lecture.



What can be done to mobilise funding and financing for subnational infrastructure investment?

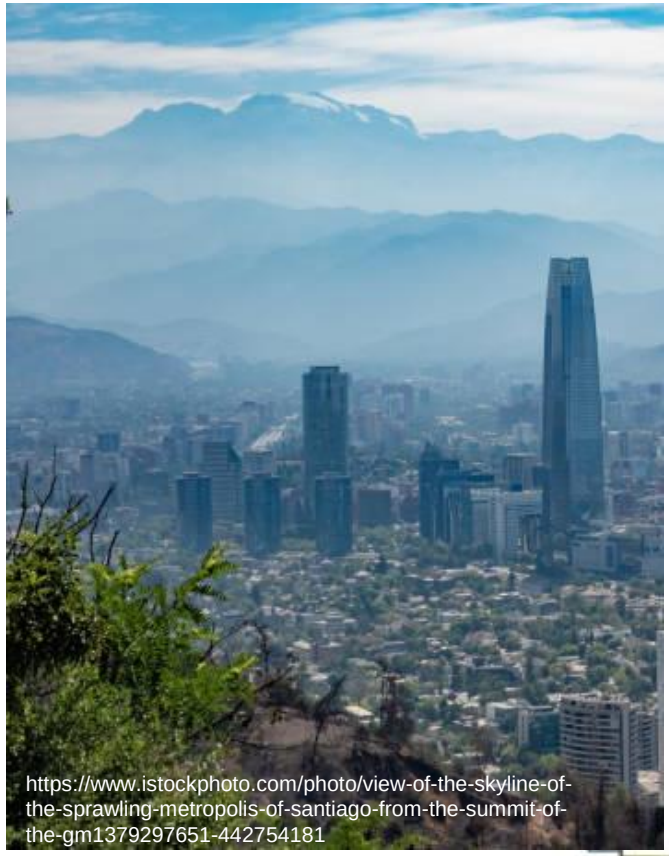


Source: G20-OECD POLICY TOOLKIT TO MOBILISE FUNDING AND FINANCING FOR INCLUSIVE AND QUALITY INFRASTRUCTURE INVESTMENT IN REGIONS AND CITIES © OECD 2022

About this Toolkit

Inclusive and quality infrastructure investment is critical to lay the foundations for economic growth, help reduce poverty and improve well-being in regions and cities. As we start to emerge from the COVID-19 crisis, and already face new challenges from megatrends and shocks, it will be critical to support infrastructure investment in regions and cities that is inclusive, sustainable, resilient and high-quality.

This means that addressing global, regional and local infrastructure gaps, and achieving an inclusive recovery, will require more and better infrastructure investment by subnational governments. All actors – national and subnational governments, multilateral development banks, other international organisations and the private sector - have a role to play to support inclusive and quality infrastructure investment by subnational governments.



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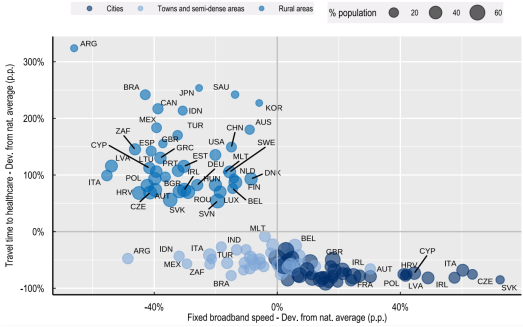
About this Toolkit

To support infrastructure investment in regions and cities, the G20 with support of the Organisation for Economic Co-operation and Development (OECD) and the Asian Development Bank (ADB) have developed this Toolkit. Why this Toolkit?

The main objective of this Toolkit is to help national and subnational governments mobilise funding and financing for infrastructure investment in regions and cities. To help achieve this objective, the Toolkit firstly highlights the key role of creating an enabling environment that support subnational governments to mobilise funding and financing.

Why focus on subnational infrastructure investment?



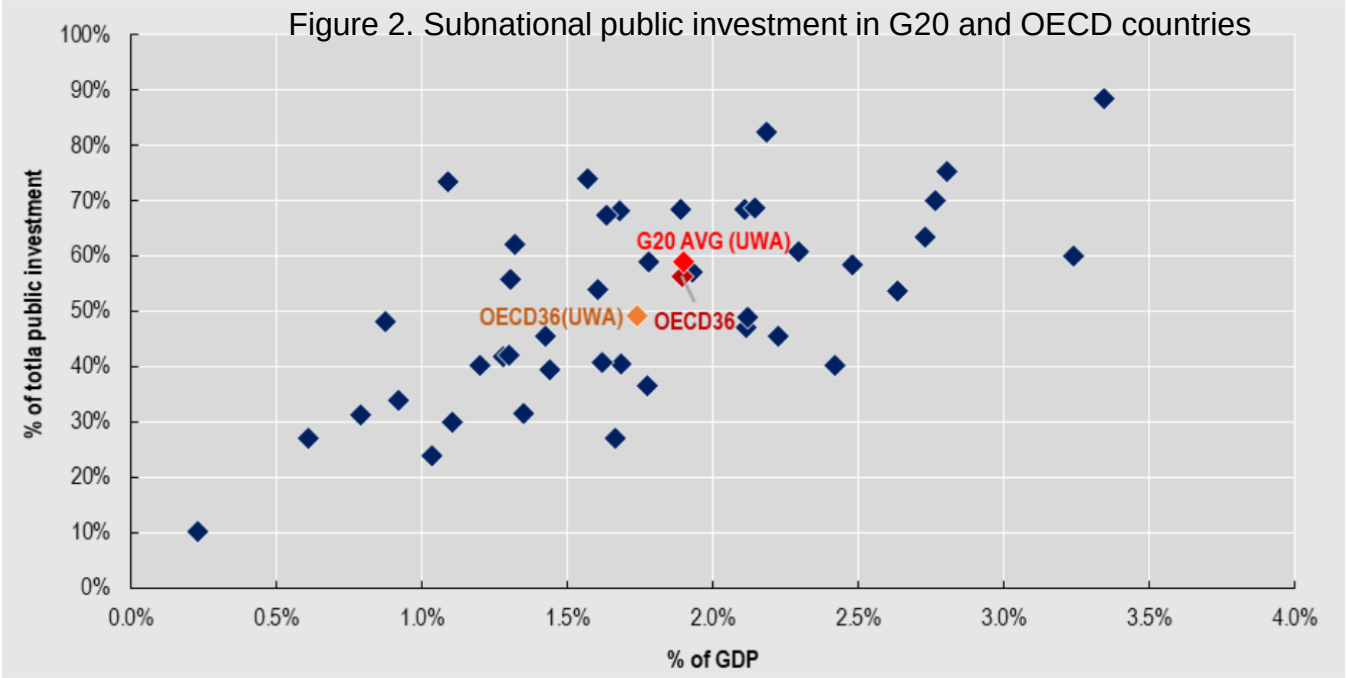
- Infrastructure investment needs in regions and cities are significant
- Investment needs are being shaped by asymmetric megatrends and shocks
- There is a need to understand the specific investment needs of different places and their interdependences
- Inclusive infrastructure investment improves access to essential public services

Figure 1. Location gap in travel time to healthcare versus location gap on internet speed, OECD and G20 countries

Why focus on subnational infrastructure investment?

- Subnational governments are important public infrastructure investors
- Subnational governments have important climate-related spending and investment responsibilities.

Figure 2. Subnational public investment in G20 and OECD countries



Why focus on subnational infrastructure investment?

- Funding sources and financing instruments for subnational governments infrastructure vary across countries

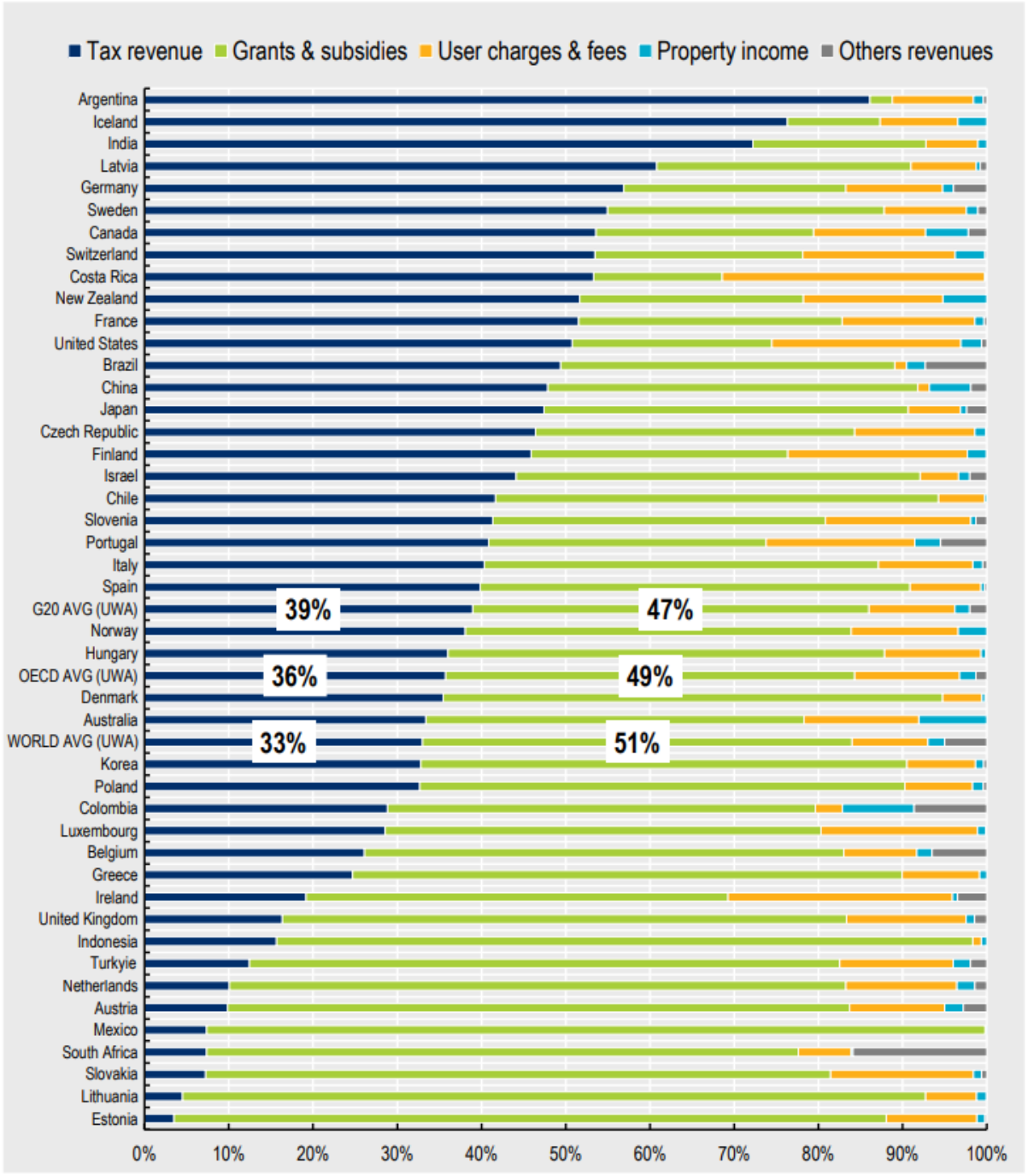
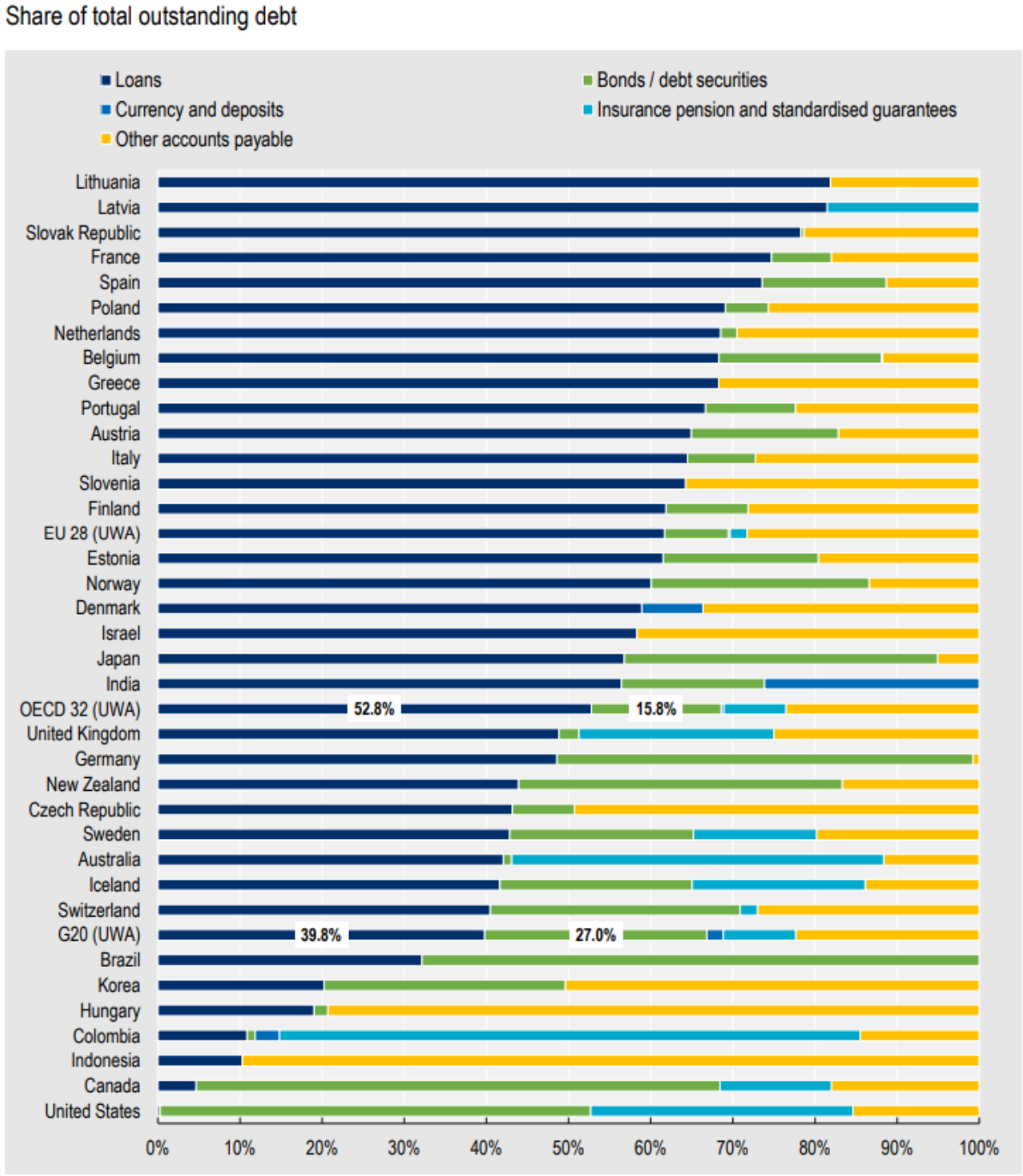


Figure 3. Subnational government revenue by category as a percentage of total revenues

Source: (OECD/UCLG, 2019[3]).

[15] Figure 4. Subnational government debt by instrument



Note: More recent data available with the 2022 edition of the OECD-UCLG World Observatory on Subnational

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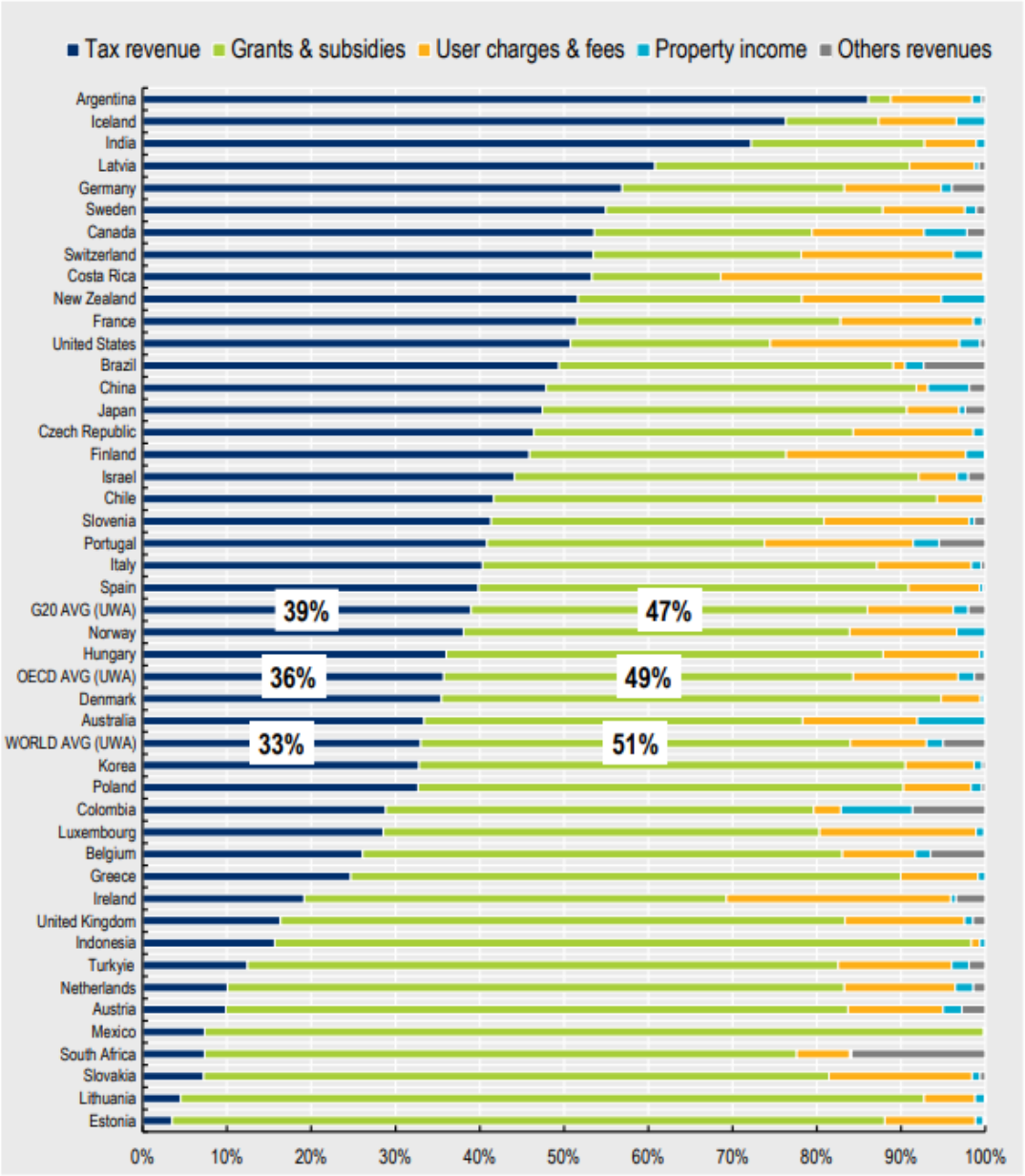
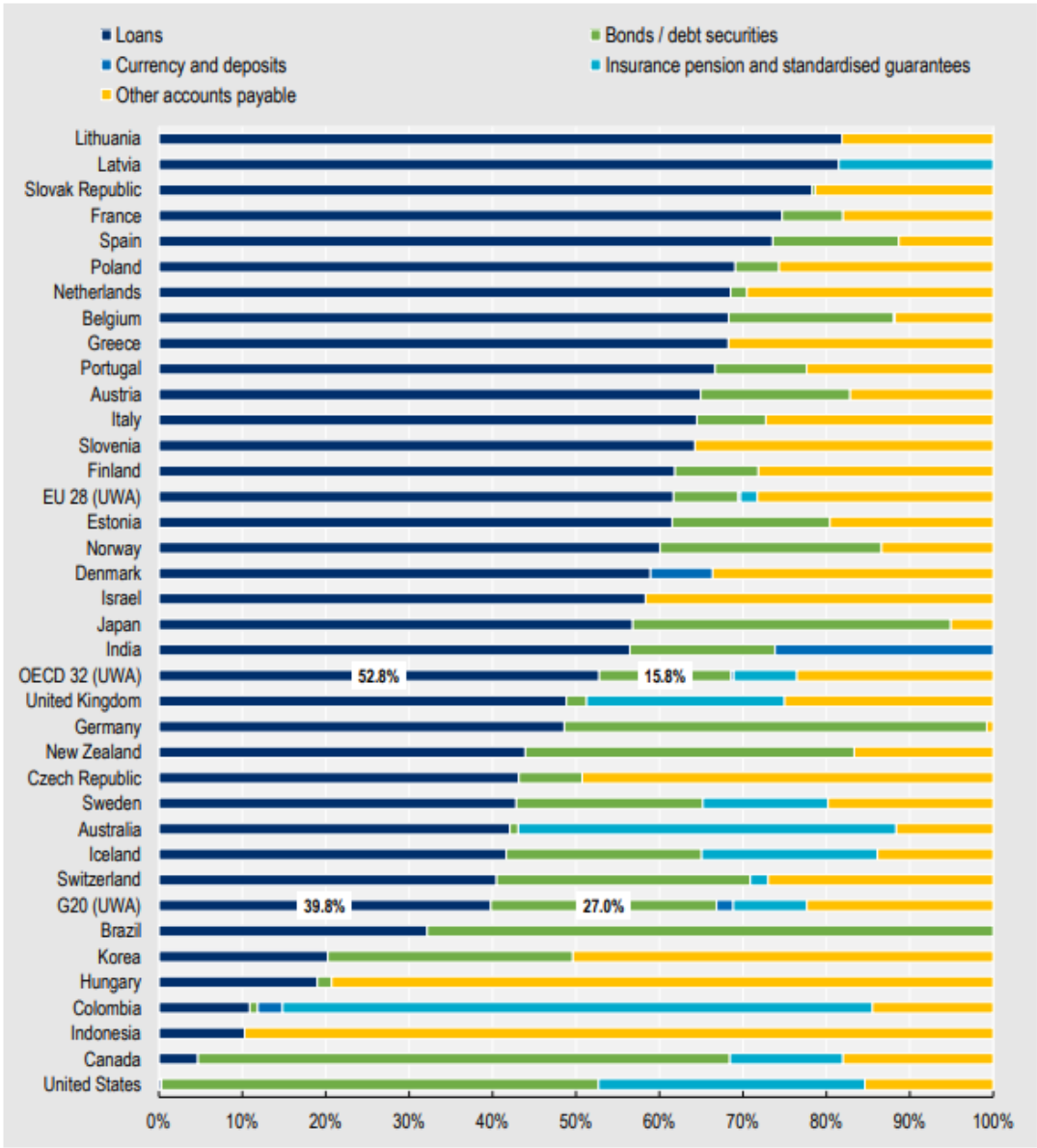


Source: (OECD/UCLG, 2019[3]).

Figure 4. Subnational government debt by instrument

Share of total outstanding debt



Note: More recent data available with the 2022 edition of the OECD-UCLG World Observatory on Subnational Government Finance and Investment.

How to support subnational infrastructure investment?

Subnational governments can be mobilised to support inclusive and quality infrastructure investment in regions and cities. This Policy Toolkit focuses on four key topics that are essential to mobilise funding and financing for inclusive and quality infrastructure investment by these governments.

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The **enabling environment** is the first topic covered. This refers to various frameworks, regulations, processes, systems, organisations, networks and other structures that define how infrastructure investment can be carried out by subnational governments. A supportive enabling environment can increase the ability of subnational governments to harness funding sources, leverage financing instruments and adopt different investment approaches. The enabling environment is an also key consideration in the credit ratings for subnational governments. Key elements of the enabling environment covered in this Toolkit are: fiscal and regulatory frameworks; institutional capacity; mechanisms for co-ordination, cooperation and community engagement; and, access to financial markets for subnational governments.

Mobilising **funding** is the second topic covered. Funding is essential to pay for infrastructure investment, operations and maintenance. It can also help to mobilise financing (Box 2). Insufficient funding is often a key investment barrier for subnational governments to scale-up infrastructure investment and low availability of funding sources can affect these government credit ratings (Box 3). For subnational governments, funding might be collected directly (e.g., grants and subsidies, taxes, user charges, etc.) or through specific user-charges collected by a private operator of public infrastructure (e.g., through a concession agreement). Funding sources considered in this Policy Toolkit are grants and subsidies, taxes, user charges and fees and land value capture. The opportunity to increase funding availability through improved asset management is also considered.

Mobilising **finance** is the third topic covered in this Policy Toolkit. Finance is essential to help subnational governments meet the high up-front costs of infrastructure investment, which could otherwise be unaffordable or may place substantial pressure on subnational government budgets. The appropriate use of finance can increase the ability for subnational governments to undertake needed investments and spread the burden of payment across future beneficiaries (e.g. users, citizens). Opportunities for subnational governments to mobilise financing mainly relate to the use of debt (loans, bonds), rather than equity; however, equity can also be mobilised and is covered in this toolkit. The key financing and creditworthiness instruments included are bonds, loans, equity and guarantees.

Box 2. 'Funding', 'financing' and 'investment approaches'

'Funding', 'financing' and the 'investment approach' are interlinked but distinct terms used throughout this toolkit.

Funding refers to the money ultimately used to pay for an investment. It may come through various consolidated subnational government revenue sources (i.e. grants and subsidies, taxes, various user charges and fees, reserves, property income, etc.) or from a specific user-charge paid by a user to a public or private infrastructure operator (for example, under a concession agreement). While funding is not required to pay up-front investment costs, it is always required to pay for operations, maintenance and the repayment of financing.

Financing refers to money from private or public financiers used to pay some or all of the up-front investment costs, which comes with an obligation for future repayment. In most countries, the 'golden rule' applies meaning that financing for subnational governments is only permitted to cover investment needs and cannot be used to cover current expenditure (e.g. operating costs). Financing may be debt (loans, bonds) or equity, particularly in the case of a Public Private Partnership. Financing is repaid from funding sources.

The **investment approach** refers to the model used to leverage funding and financing to deliver an infrastructure investment. Possible approaches include the provision of infrastructure through traditional – or more innovative - public procurement by a public body, delivery through a state-owned enterprise or delivery through a public-private partnership (PPP).

The **investment approach** is the final topic. This refers to the how funding and financing are leveraged to deliver infrastructure investments. The choice of investment approach can be separate to the choice of funding sources and financing instruments, but these topics are inter-related and usually decided together during project development. For example, any investment approaches may be financed through a loan or bond or can be funded through a grant or user charge. Investment approaches covered in this Policy Toolkit include the provision

How to support subnational infrastructure investment?

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Box 1. The role of subnational governments

Present both in unitary and federal countries, subnational governments are broadly defined as decentralised or devolved entities who have general responsibilities and some authority with respect to budget, staff and assets. This term "subnational government" covers tiers of government lower than the central/federal level, irrespective of their country-specific denomination, such as state, regional, provincial, municipal and local governments, councils or authorities, among other terms.

Subnational governments are very diverse across countries in terms of demographic and geographic size, governance structure, responsibilities, and fiscal arrangements. While responsibilities vary significantly across countries, subnational governments often provide infrastructure and services that support local economic development and well-being (see table below). They often have key responsibilities for land use planning and permitting, which are critical for the success of infrastructure projects.

Typical responsibilities by level of subnational government

Local level	Intermediary level	Regional (state) level
Education (nursery, pre-elementary and primary)	*Specialised and more limited responsibilities of supra-municipal interest.*	Education (secondary)
Urban planning	Education (Secondary or specialised)	Spatial planning
Local utilities (water, sewerage)	Social and youth Welfare	Regional economic development
Local transport	Secondary healthcare	Health (hospitals)
Primary healthcare	Waste	Regional roads and public transport
Recreation	Transport (Secondary roads, public transport)	Culture, heritage and tourism
Culture centres	Environment	Environmental protection
Public order and safety		Social housing
Environment		Public order and safety
Local economic development		

Source: Adapted from OECD (2019) Making Decentralisation Work: A Handbook for Policy-Makers

Box 3. The credit rating of subnational governments is linked to the enabling environment and funding sources available

Credit ratings are used by financial institutions and markets to help determine the risk premium that is applied when lending to a subnational government. This means that improving the credit rating of a subnational government is an important lever to increase the accessibility and affordability of finance for infrastructure investment.

Credit rating agencies apply pre-defined criteria to determine a credit rating for subnational government debt. Fitch Ratings, for example, considers the following key risk factors: the risk profile, debt sustainability, extraordinary support and asymmetric risks, and the influence of the sovereign rating.

Risk profile: This considers the interplay between 'risk sources' and corresponding 'risk mitigants'. Risk pillars considered in this assessment include revenues, expenditures, and debt and liquidity. The analysis also considers the extent to which resilience to risk can be derived from the ability of the subnational government to adjust revenues, curtail or recover expenses, and access backup liquidity. The influence of the institutional framework (enabling environment) is captured in this analysis.

Debt sustainability: This considers quantitative metrics that assess the ability of a subnational government to withstand a reasonable economic downturn given the forecast level of debt in a five-year forward-looking scenario.

Extraordinary support and asymmetric risks: This considers additional positive or negative risk factors such as transparency, governance and the possibility of extraordinary support from an upper-level government.

Influence of the sovereign rating: This considers the sovereign rating, as subnational government ratings are typically capped by the sovereign rating, in recognition of the higher degree of control and potential intervention by national governments even in the most decentralised frameworks.

Source: International Local and Regional Governments Rating Criteria (Fitch Ratings, 2021[20])

Enablers of subnational infrastructure investment

Creating an enabling environment is essential to support subnational governments to undertake inclusive and quality infrastructure investment. Strengthening the enabling environment can help to improve the quality and 'bankability' of projects, enhance subnational government creditworthiness, and support the effective mobilisation of funding sources and financing instruments.

Building on relevant G20 documents and OECD recommendations (OECD, 2014[1]; OECD, 2020[21]), this toolkit outlines four key elements of the enabling environment for subnational government infrastructure investment:

(i) fiscal and regulatory frameworks;

(ii) institutional capacity;

(iii) co-ordination, cooperation and stakeholder engagement mechanisms; and

(iv) access to financial markets.

Enabling environment for subnational infrastructure investment

FISCAL AND REGULATORY FRAMEWORKS	INSTITUTIONAL CAPACITY	CO-ORDINATION, COOPERATION AND STAKEHOLDER ENGAGEMENT	ACCESS TO FINANCIAL MARKETS
Well-designed fiscal and regulatory frameworks can support infrastructure investment in areas where subnational governments have responsibility. This involves creating fiscal space for subnational investment while managing risks relating to subnational deficits and debt, and facilitative regulatory provisions (e.g., for PPPs, land use, property rights, procurement, etc.)	Institutional capacity of subnational governments, including human resources, skills, relevant policies, processes, and systems required for planning, prioritising investments, project designing and implementation, financial structuring, delivery of public services, as well as monitoring and evaluation of investment outcomes.	Co-ordination and cooperation with government and non-government actors at all levels and across all sectors, including businesses, civil society organisations, citizens, and sectors to ensure that there are no duplications but complementarities, and avenues for effective partnerships.	Identification and access to various external financing sources, including private businesses, and domestic and international financial markets besides public finance for subnational government infrastructure investments. Co-ordination (largely to exchange information) and partnerships between subnational governments and financing institutions are key.
Featured Tools			
Inter-governmental fiscal frameworks Budget balance rules Debt rules Internal and external audits Fiscal risk assessment Monitoring and early warning systems Independent fiscal institutions	Capacity building programmes Technical assistance facilities Project preparation and monitoring platforms PPP units	City and regional deals/contracts Regional and local development strategies Inter-governmental investment co-ordination platforms Inter-municipal cooperation arrangements Stakeholder engagement	Credit assessments Subnational pooled financing mechanisms Trust funds National Infrastructure banks
Case Studies			
1. Financial Discipline Law for Federal Entities and Municipalities (Mexico) 2. Infrastructure Funding and Financing Act, 2020 (New Zealand)	3. Preparation and Management Software: SOURCE (International) 4. The City Creditworthiness Initiative (International)	5. Regional Development Investment Agreement (Korea) 6. City Disaster Insurance Pool (The Philippines)	7. Minas Gerais Development Bank (Brazil) 8. Federal Fiduciary Fund for Regional Infrastructure (Argentina) 9. INCA Municipal Debt Fund (South Africa)

Fiscal and regulatory frameworks

Fiscal and regulatory frameworks create the overarching parameters and rules for subnational infrastructure investment. These frameworks define expenditure and investment responsibilities (including for infrastructure provision), assignments of revenues (often according to the “matching principle” to avoid under or unfunded mandates) and the use of finance (loans, bonds, etc.) for investments. Effective fiscal and regulatory frameworks seek to enable and support subnational infrastructure investment, while also managing risks associated with subnational government budget imbalances and indebtedness.

Key elements of an appropriate fiscal framework

Key elements of an appropriate fiscal framework for subnational governments to consider include notably

(a) a clear assignment of responsibilities;

(b) a sufficient and adequate level of revenues to cover spending obligations, based on intergovernmental transfers and own-source revenues (tax bases and rates, user charges and fees, property income, etc.);

(c) the stability and predictability of revenues

(d) access to external financing (e) sound rules for fiscal discipline and responsibility (i.e. budget balance, borrowing)

Golden Rule

- One of the purposes of fiscal rules is to limit the risk from unsustainable levels of subnational government debt. This can include **budget balance rules** and **debt rules**. One of the most common fiscal rules is the so-called “golden rule”, which allows subnational governments to borrow only for capital investment instead of current expenditures.

Fiscal Frameworks

Sound fiscal frameworks need to be accompanied by effective **budgetary**, **accounting** and **reporting systems** across different levels of governments, along with **external and internal audit** procedures and independent oversight of audit systems to avoid insolvency or default. This monitoring processes may include *fiscal risk assessments* to measure the fiscal capacity and creditworthiness of subnational governments, which could be conducted by subnational governments themselves, or by a higher-level government, a financial institution (public or private bank), an external rating agency or specialised consulting company.

Two examples of recent changes to fiscal frameworks and regulations that aim to support subnational government investment were in Mexico and New Zealand (See Case study 1 and Case study 2 in the Annex A).

Featured tools:

Inter-governmental fiscal frameworks	Inter-governmental fiscal frameworks include clearly defined constitutional and/or legal provisions regarding fiscal structure, as well as basic principles for assigning appropriate public functions and revenues to subnational governments (grants, shared tax revenues, own-source revenues, etc.). They may involve fiscal equalisation mechanisms to transfer financial resources to and between subnational governments, with the aim of mitigating regional differences in fiscal capacity and expenditure needs (OECD, Forthcoming[24]). In the fiscal framework, it is important to define accountability relationship – with citizens and/or other local actors, with higher-levels of government, and between legislators and administrators at the subnational level (ADBI, 2016[25]; OECD, 2019[22]).
Budget balance rules	Budget balance rules set a ceiling on a jurisdiction's budget deficit, with the aim of promoting the sustainable use of debt over the long-term. These rules can be zero deficit ("balanced budget"), a maximum permissible deficit or even on a budget surplus. The main drawback of budget balance rules is that they can entail pro-cyclical policies, which means that subnational governments may reduce borrowing and investment during economic downturns. Some approaches look to introduce cyclically adjusted or structural balance rules. Another fiscal rule is expenditure-growth ceilings that aim to restrain subnational governments' spending growth over the medium-to-long run, thereby indirectly limiting subnational deficits (Vammalle and Bambalaite, 2021[26]).
Debt rules	The most common fiscal rule at the sub-central level is the "Golden Rule", which restricts the use of borrowing to capital expenditure but not current expenditure, allowing subnational governments to invest. Besides the Golden Rule, other prudential rules include rules that target debt levels, new borrowing, debt servicing or foreign currency borrowing. Common restrictions are limits on the total debt level and the issuance of new debt. They are mostly expressed as a share of sub-central total or current revenues, sometimes as a percentage of GDP and, in rare cases, a ceiling on total debt in absolute terms is set (OECD, 2016[27]; Eyraud et al., 2020[28]). Limitations on foreign-currency borrowing may be implemented to reduce currency exchange risk. Other prudential rules may exist, including limits on short-term borrowing and commercial debt, choice of debt (loans vs bonds) and lenders, or on the type of transactions. Debt rules can promote the fiscal sustainability of subnational governments, especially debt services rules (OECD, Forthcoming[29]) .
Internal and external audits frameworks	Internal audit frameworks are organisational policies and procedures to ensure reliable record keeping, promote operational efficiency and monitor adherence to policies (Baltaci and Yilmaz, 2006[30]). They can improve financial and administrative management capacity by limiting fiscal and investment behaviours that result in waste and misallocation of resources. External audits may be performed by upper-level governments or by an external audit agency.
Fiscal risk assessment	Fiscal risk assessments evaluate a subnational government's degree of exposure to fiscal risks. Undertaking fiscal risk assessments can support subnational governments to improve their investment performance and fiscal governance by revealing risks and areas for improvement. For example, the State of Michigan in the United States has a 10-point scale fiscal stress monitoring system for local governments. The system tracks indicators such as population growth, real taxable value growth, large decreases in real taxable value and general fund operation deficit, among other factors. (MSU, 2015[31])
Monitoring and early warning systems	Monitoring and early warning systems may be put in place to alert relevant authorities when subnational governments are incurring issues such as over-indebtedness. Monitoring and early warning systems serve as a tool to promote sustainable investment by supporting early identification of fiscal risks so that remedial actions can be undertaken. Research suggests that monitoring and early warning systems should assess both the explicit and implicit sources of risk, as well as the associated direct obligations and contingent liabilities (Brixi, 2005[32]). For example, a traffic light alert system in Mexico was developed to assess and monitor subnational debt levels (See Case study 1 in Annex A.)
Independent fiscal institutions	Independent fiscal institutions are independent parliamentary budget offices and fiscal councils aimed at promoting sustainable public finances. Some IFIs include subnational governments in their scope by monitoring fiscal performance and compliance of fiscal rules by subnational governments throughout the budget cycle (OECD, 2020[33]). Other IFIS are established at the subnational level in federal countries, such as Canada and Australia but also in the United Kingdom in Scotland and Northern Ireland (EC, 2022[34]; OECD, 2021[35]). They assess the reasonableness of targets and plans, the risk of noncompliance and the progress of corrective action. They can also serve as an early warning system by impending budgetary emergencies at an early state so that appropriate countermeasures can be initiated in a timely manner. For example, in Ontario, Canada, the Financial Accountability Office provides independent analysis on the state of the province's finances, trends in the provincial economy and related matters (FAO, n.d.[36]; OECD, 2021[35]).

10-minute break till 09:55

Institutional capacity

Enabling environment for subnational infrastructure investment

FISCAL AND REGULATORY FRAMEWORKS	INSTITUTIONAL CAPACITY	CO-ORDINATION, COOPERATION AND STAKEHOLDER ENGAGEMENT	ACCESS TO FINANCIAL MARKETS
Well-designed fiscal and regulatory frameworks can support infrastructure investment in areas where subnational governments have responsibility. This involves creating fiscal space for subnational investment while managing risks relating to subnational deficits and debt, and facilitative regulatory provisions (e.g., for PPPs, land use, property rights, procurement, etc.)	Institutional capacity of subnational governments, including human resources, skills, relevant policies, processes, and systems required for planning, prioritising investments, project designing and implementation, financial structuring, delivery of public services, as well as monitoring and evaluation of investment outcomes.	Co-ordination and cooperation with government and non-government actors at all levels and across all sectors, including businesses, civil society organisations, citizens, and sectors to ensure that there are no duplications but complementarities, and avenues for effective partnerships.	Identification and access to various external financing sources, including private businesses, and domestic and international financial markets besides public finance for subnational government infrastructure investments. Co-ordination (largely to exchange information) and partnerships between subnational governments and financing institutions are key.
Featured Tools			
Inter-governmental fiscal frameworks Budget balance rules Debt rules Internal and external audits Fiscal risk assessment Monitoring and early warning systems Independent fiscal institutions	Capacity building programmes Technical assistance facilities Project preparation and monitoring platforms PPP units	City and regional deals/contracts Regional and local development strategies Inter-governmental investment co-ordination platforms Inter-municipal cooperation arrangements Stakeholder engagement	Credit assessments Subnational pooled financing mechanisms Trust funds National Infrastructure banks
Case Studies			
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Among other areas, effective infrastructure investment usually requires institutional capacity within subnational governments for:

- Strategic planning: to support the identification of long-term regional and local development priorities that guide infrastructure investments and other complimentary policy actions (such as land use changes) in line with regional and local development strategies.
- Project planning and appraisal: to help ensure specific infrastructure investments are well defined, efficiently prioritised, provide value-for-money and contribute to regional and/or local development objectives. This can include online project preparation and monitoring platforms such as SOURCE, which has been established by multilateral development banks to help national and subnational governments prepare quality infrastructure investment projects (See Case study 3 in Annex A).
- Public financial management: to budget and manage life-cycle investment costs, align budget frameworks, monitor and account for financing flows, account for risks and contingent liabilities and undertake auditing processes. For example, the World Bank and other partners launched the City Creditworthiness Initiative to build the public finance management capacity of cities, aiming to enhance their creditworthiness (See Case study 4 in Annex A).
- Public procurement: to clearly articulate and prioritise the objectives of procurement to private constructors and assess options against value for money criteria and other objectives.
- Monitoring and evaluation: to conduct regular and rigorous ex-post evaluation and use monitoring and evaluation information to enhance decision–making.

Featured tools:

Technical assistance facilities	Technical assistance facilities created by multi-lateral development banks, national/state, governments or other organisations aim to strengthen policies, regulations and institutions for infrastructure investment and support effective private-sector participation in infrastructure. These facilities often provide experts to support subnational governments with specific projects or activities and promote knowledge-transfer. The experts could also be shared between jurisdictions or government departments where permanent placement of experts is not needed or is difficult to recruit. For example, PPIAF's Subnational Technical Assistance Program helps develop public financial management skills, strengthen credit ratings and build capacity (PPIAF, 2021[40]).
Project preparation and monitoring platforms	Infrastructure project preparation and management platforms support the development, management and monitoring of quality infrastructure projects. These online platforms provide easy to use documents to support effective infrastructure planning and investment processes. They usually provide a comprehensive map of all aspects to consider for the preparation of sustainable infrastructure projects and example documents. For example, multilateral development banks have developed SOURCE to provide a complete range of documents to support infrastructure planning and investment processes (see Case study 3 in Annex A)
PPP Units	PPP Units with dedicated and technically sound expert teams (in house and/or contractual) can strengthen subnational governments capacity in undertaking PPPs. Most PPP Units are national, but some countries also have PPP Units at the subnational level. Although their specific role varies, PPP Units tend to perform a combination of five main functions: policy formulation and co-ordination, gate keeping and quality control, technical assistance, education and capacity development, and PPP promotion. For example, the PPP Unit in the Brazilian State of Bahia aims to promote and support PPP activities in the region (State of Bahia, n.d.[41]).
Capacity building programmes	Capacity building programmes seek to improve the ability of subnational governments to deliver infrastructure investment. Among many areas, capacity building can consist of classroom training, the creation of guidelines and training materials, formative activities delivered by experts to subnational officials and staffing policies (i.e. secondment programmes). For example, the City Creditworthiness Initiative developed by the World Bank and other partners seeks to address the knowledge gap in subnational borrowing by teaching city leaders the fundamentals of creditworthiness enhancement (See Case study 4 in Annex A).

Co-ordination, cooperation and stakeholder engagement

Enabling environment for subnational infrastructure investment

FISCAL AND REGULATORY FRAMEWORKS	INSTITUTIONAL CAPACITY	CO-ORDINATION, COOPERATION AND STAKEHOLDER ENGAGEMENT	ACCESS TO FINANCIAL MARKETS
Well-designed fiscal and regulatory frameworks can support infrastructure investment in areas where subnational governments have responsibility. This involves creating fiscal space for subnational investment while managing risks relating to subnational deficits and debt, and facilitative regulatory provisions (e.g., for PPPs, land use, property rights, procurement, etc.)	Institutional capacity of subnational governments, including human resources, skills, relevant policies, processes, and systems required for planning, prioritising investments, project designing and implementation, financial structuring, delivery of public services, as well as monitoring and evaluation of investment outcomes.	Co-ordination and cooperation with government and non-government actors at all levels and across all sectors, including businesses, civil society organisations, citizens, and sectors to ensure that there are no duplications but complementarities, and avenues for effective partnerships.	Identification and access to various external financing sources, including private businesses, and domestic and international financial markets besides public finance for subnational government infrastructure investments. Co-ordination (largely to exchange information) and partnerships between subnational governments and financing institutions are key.
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Co-ordination, cooperation and stakeholder engagement

Many infrastructure responsibilities are shared across national and subnational governments, so 'vertical' co-ordination across levels of government and 'horizontal' co-ordination across jurisdictions is essential to ensure that investment occurs at the right scale and in the right place (OECD, forthcoming[11]). Engagement with local communities and stakeholders is also critical for inclusive infrastructure investment.

Vertical co-ordination helps to strengthen efficiency, effectiveness and complementarities of infrastructure investments (OECD, 2014[1]; OECD, 2020[21]). Co-ordination can help ensure that investments achieve their intended benefits. If a national or regional government decides to construct a highway or airport, for example, complimentary local investments are also required for municipal roads and public transport in surrounding areas. An effective platform for co-ordination among different levels of government and other stakeholders can help to align planning and implementation across levels of government.

Effective vertical co-ordination also helps to identify shared investment opportunities and bottlenecks, manage joint responsibilities, minimise contradictory investments, and pool funds for joint investments or for specialised support. Vertical co-ordination mechanisms can include co-funding arrangements across levels of government such as **city and regional contracts or deals**, and **regional or local development strategies**. For example, the Korean Regional Development Investment Agreement is a co-funding arrangement between the national and local governments to support regional development (See Case study 5 in Annex A). Mechanisms can also include platforms for inter-governmental dialogue and dedicated regional development agencies that design and implement investment programmes under national frameworks (OECD, 2019[42]).

Horizontal co-ordination between jurisdictions is also essential given that many types of infrastructure investments do not neatly fit within one jurisdiction (OECD, 2014[1]; OECD, 2020[21]). Effective co-ordination and cooperation can contribute to ensuring that infrastructure investments occur at the relevant scale and promote efficiency by harnessing economies of scale (where they occur across boundaries) and enhancing policy synergies among jurisdictions. Cross-jurisdiction co-ordination can be encouraged through financial and non-financial incentives, and agreements between jurisdictions, such as **inter-municipal cooperation arrangements** like in France where they are widespread. In the Philippines, 10 cities have joined together to create an insurance pool to jointly fund the repayment of infrastructure after disasters (See Case study 6 in Annex A).

Engaging with public, private sector and civil society stakeholders in the design and implementation of public investment strategies is critical to enhance social and economic value of investments, and to support accountability. These stakeholders could be residents, civil society organisations, unions, private companies or business associations, among other groups. All levels of government should involve stakeholders in development of investments at an early stage of the investment cycle, and, at later stages, in feedback and evaluation. Information on public investment plans, expenditures, and results should be exposed to some level of public scrutiny to promote transparency, accountability and trust. Consultation processes should be inclusive, open and transparent, and promote transparency and integrity (OECD, 2014[43]).

Featured tools:

City and regional deals/contracts	City and regional contracts bring together all levels of government, the community and the private sector with the aim of aligning planning, investment and governance practices to maximise the efficiency of a city/region's investments. Contracts are tailored to each city/region's comparative advantages, assets and challenges and adopt a place-based approach by putting community-identified priorities at the centre of the plan. Contracts may also encourage innovation among public and private actors, challenging established models and working methods. Contracts may rely on central and shared funding, and they can operate over short periods. In essence, deals can be perceived as vehicles for co-operation, which allow stakeholders to pool resources. Examples include "city deals" (United Kingdom, the Netherlands), State-Regions contracts and *Contrats de relance et de Transition écologique* in France. Another example is the Korean Regional Development Investment Agreement that is an inter-governmental contract to support bottom-up infrastructure projects (see Case study 5 in Annex A).

Featured tools

Regional and local development strategies	Regional and local development strategies and plans help to identify and coordinate investments and other public interventions at a regional, metropolitan, or local level to support economic development and improve well-being. These strategies and plans can help to foster co-ordination and engagement with the community during their preparation. They often serve as a long-term guide for sequencing multiple investments and can help to shield investments from political changes. Regional and local development strategies and plans provide a good opportunity to engage with stakeholders and build public support for future investments. For example, regions and cities in the Czech Republic develop local development plans, which are then collected through the system of Regional Permanent Conferences and contribute to the elaboration of a national development plan. (OECD, 2019[42])
Inter-governmental investment co-ordination platforms	Countries may create regular dialogue platforms or institutions to coordinate infrastructure investment across levels, including by reviewing infrastructure needs within a country, identifying policy and investment priorities, strategically coordinating and planning investments across jurisdictions, and ensuring that various infrastructure investments are complementary and contribute to common goals at all levels. For example, the National Forum for Regional Growth and Attractiveness in Sweden brings together national and subnational governments for ongoing political and strategic dialogues, based on national strategies and Regional Development Programmes (OECD, 2019[42]).
Inter-municipal cooperation arrangements	Co-operation between subnational governments can support investment at the right scale and in the right place. Formal or informal inter-municipal co-operation arrangements can facilitate the provision of joint municipal services and to ensure investment at an efficient scale, avoiding fragmentation of investment projects. This can be particularly beneficial for facilitating investments at the metropolitan scale and to reinforce urban-rural linkages. Inter-municipal co-operation can also be useful for small municipalities who may have scarce public resources to efficiently deliver quality public goods to their citizens and to derive economies of scale with their own investment projects. For example, municipalities in France are encouraged to collaborate on the provision of public services and infrastructure through Public Establishments for Intermunicipal Cooperation (EPCI) (OECD, 2019[22]; AdCF, 2020[44]).
Stakeholder engagement	Ensuring that all stakeholders (citizens, businesses, NGOs, etc.) are given the opportunity to participate and engage in public investment planning and implementation is critical to setting investment priorities that are consistent with local preferences and need, providing a feedback loop on project implementation and supporting transparency, accountability, trust, and integrity of investment processes. Among other areas, stakeholder engagement can be supported through regional development planning processes, community consultations and public engagement in environmental regulatory approvals. For example, in the Netherlands many urban regions have set up "Economic Boards", which consist of a triple-helix co-operation between subnational governments, knowledge institutes (e.g. universities), and the private sector to identify investment opportunities that can spur development in the regions (OECD, 2019[42]).

5-minute break

Access to financial markets

Enabling environment for subnational infrastructure investment

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Access to financial markets

Subnational governments' access to financial markets is essential to scale-up inclusive and quality infrastructure investment. Financing instruments that may be available to subnational governments include loans from public or private financial institutions and the issuance of bonds directly on domestic or international capital markets. In many countries, loans are the most common form of finance for subnational governments, while bonds are more frequently used with larger and more creditworthy governments. The bond market for subnational government debt is however well established in many countries including, Brazil, Canada, China, India, Japan, Korea and the United States for municipal and state governments (OECD, 2021[2]),

In many countries, one of the key constraints for subnational governments to access affordable finance is the availability and depth of **local-currency capital markets** for subnational governments (UNCDF, 2022[8]). Local investors may be reluctant to invest in subnational government bonds in countries with limited history of bond issuances, as they are unfamiliar with related risks. Meanwhile, international investors who are familiar with these bonds might face additional currency risk for which they may seek a higher investment return. Hence, improving the depth of local currency debt markets has an important role to improve access to finance for subnational governments.

Beyond deepening capital markets, one common way to improve access to finance for subnational governments is by establishing targeted **financial intermediaries** for subnational governments. National or subnational governments may create these intermediaries using a wide range of structures and approaches. In general, financial intermediaries, issue bonds on capital markets or borrow from other lenders, and then on-lend to subnational governments. Lending is typically on better terms than would have otherwise been available, partly because these financial intermediaries may better understand the risk profile of subnational governments. Examples of financial intermediaries include state or municipal bond banks, **national infrastructure banks**, treasury corporations, regional development banks and local government financing agencies. For example, the Minas Gerais Development Bank in Brazil provides finance especially to less developed municipalities in the region (See Case study 7 in Annex A). Where financial intermediaries are created by multiple subnational governments pooling their resources they may be referred to as **subnational pooled financing mechanisms** (or local government funding agencies). These mechanisms exist in Japan, New Zealand, France, Sweden, Finland and Norway, among other countries.

Trust funds, such as those established by multilateral development banks, also have a key role to support subnational infrastructure investment. These funds may be established using contributions from different countries, private organisations and/or philanthropic groups or individuals, and may provide grants or loans to subnational governments through dedicated programs. Trust funds may have a defined purpose to support subnational governments, including a focus on improving urban infrastructure or municipal finances. In Argentina, for example, the federal government created a fund for regional infrastructure that lends to provincial governments for essential infrastructure (see Case study 8 in Annex A). In South Africa, the INCA Municipal Debt Fund seeks to support investments in 'intermediary cities' (see Case study 9 in Annex A).

Improved information exchange between subnational governments and finance providers can also help to improve access to finance by reducing frictions and clarifying risks (GIZ, 2012[45]). Information exchange is relevant for both parties: subnational governments can develop better knowledge of capital markets and financial products; and, financial providers can better understand subnational governments' borrowing needs, risks and constraints. Effective information exchange might be supported through effective financial market regulations, credit rating assessments, educational material, and market transparency and disclosure rules.

Subnational government access to capital markets can also exert pressure on these governments to improve their fiscal discipline (for example, via financing and credit ratings). This might ultimately mean that there is a lower need for budget constraints to be put in place by national governments (Ter-Minassian, 2007[46]).

Featured tools

Featured tools:

Credit assessments	Credit assessments consider the creditworthiness of an entity or a financial instrument. Assessments may be provided by private companies, public or international organisations. For example, the World Bank has developed a technical assistance package and credit rating tool to help assess credit risk of public companies, which might be applied to subnational SOEs. (World Bank, 2022[47])
Subnational Pooled Financing Mechanisms	Subnational or municipal debt pooling is a practice where subnational governments jointly issue debt on capital markets. Subnational governments may set up a financial intermediary to improve the affordability of debt and access to capital markets.
Trust Funds	National governments, private companies or philanthropic institutions may contribute to trust funds that have an explicit purpose to support subnational infrastructure investment. These funds can be established with a defined purpose, such as to support climate friendly urban infrastructure in specific countries. For example, the ADB administers the USD150 million Urban Climate Change Resilience Trust Fund, which aims to support fast-growing cities in Asia to reduce climate vulnerability risks. Another example is the INCA Municipal Debt Fund in South Africa (See Case Study 9 in Annex A).
National infrastructure banks	National infrastructure banks may be established and have an important role to support infrastructure investment by subnational governments. In some cases, these banks may also provide technical assistance and guarantees to subnational infrastructure projects. For example, the United Kingdom Infrastructure Bank can provide financing to local governments to carryout high-value infrastructure projects (UK Infrastructure Bank, n.d.[48]).

天津外国语大学(天外)
Tianjin Foreign Studies University (TFSU)

Geoeconomics & Regional Development

Online class starts at 08:00

(Beijing Time, GMT+8)

Ivan Monich, PhD

April 10, 2023

Source: https://pixabay.com/photos/tianjin-sunset-city-aerial-view-2185510/

Funding sources to support subnational infrastructure investment

Potential funding sources for subnational governments

Grants and Subsidies	Taxation	User Charges and Fees	Asset Revenues	Land Value Capture
Transfers and subsidies from upper-level governments, international organisations and, in some cases, philanthropy that can cover current or capital expenditure (for infrastructure investment) by subnational governments. In general, the share of capital grants in subnational revenues is in general quite small on average, and volatile.	Taxes levied on income, commercial activities, wealth or property, production of goods or capital, which may be own-source ("autonomous") or shared with other levels of governments (typically personal income tax, corporate income tax, and value-added tax).	Charges or fees to the users of public infrastructure or for public services provided (e.g. waste collection), which may be collected by a subnational government or operator.	Subnational governments can seek to adopt a portfolio management approach to effectively manage their assets in the long-term public interest. This includes increasing revenues and asset benefits or decreasing whole-of life costs.	Instruments that seek to capture some of the windfall gains from public policy interventions or infrastructure investments, which could then be used by subnational governments to pay for investments.
47% of total subnational government revenue in G20 countries	39% of total subnational government revenue in G20 countries	10% of total subnational government revenue in G20 countries	*Not applicable*	*Included in other categories*
Featured tools				
Regional development funds Viability gap funding Competitive grant programmes Matching grants Conditions on grants	Property taxes Tax increment financing Carbon taxes Tourism taxes Mobility/transport taxes	Utility charges Parking fees and urban congestion charges	Public property or land leasing Asset recycling	Developer obligations Infrastructure levies Charges for development rights Land readjustment Strategic land management Transferable development rights
Case Studies				
10. On-Street Residential Chargepoint Funding Scheme (United Kingdom) 11. Federal Agglomeration Programmes (Switzerland)	12. Versement Mobilité (France) 13. Climate Action Taxes in Boulder, Colorado (United States)	14. Pico y Placa Solidario Programme and On-Street Parking Charges in Bogotá (Colombia)	15. "Rail plus property" model of Shenzhen metro (People's Republic of China)	16. Use of Transferable Development Rights In Hyderabad (India)

Grants and subsidies

Grants and subsidies for subnational governments are mainly transfers from higher-level of governments, but can also come from multilateral organisations (e.g., European Structural and Investment Fund) and in some cases, philanthropy. In G20 countries, grants and subsidies represent 47% of total subnational government revenue on average (OECD/UCLG, 2019[3]). Capital grants have been especially important during the COVID-19 crisis, as many national governments provided grants to encourage local infrastructure investment as part of the recovery (OECD, 2021[49]).

Grants and subsidies can be unconditional (i.e., general-purpose grants or block grants) or capital grants. Unconditional grants are usually provided based on a pre-defined formula and may be used for infrastructure investments selected and prioritized by a subnational government. Capital grants are given to fund specific infrastructure investments.

Capital grants may be used to fund some or all of a project's up-front costs and are typically earmarked for specific projects or programmes. These grants might be provided to encourage subnational government to undertake certain investments that align with upper-level government policy objectives and would not have otherwise occurred in a timely manner. The United Kingdom government, for example, rolled out a funding programme to support local authorities to develop electric vehicle charging infrastructure, as a policy measure to achieve its fully zero emission agenda (See Case study 10 in Annex A). Capital grants can help to overcome subnational governments budgetary constraints, encourage collaboration and support investment at the right scale. The Swiss Federal Agglomeration Programme, for example, provides competitive grants for transport infrastructure in Swiss agglomerations, with the aim of incentivising coordination and cooperation among local authorities (See Case study 11 in Annex A).

Grants for subnational infrastructure investment can be distributed and administered through a range of different structures and approaches. In some cases, national governments establish specific **regional development funds** or investment programmes that then allocate resources to projects or subnational governments in line with defined policy objectives. **Viability gap funding** programmes, for example, is a specific type of funding programme to support the use of PPP projects. Grants may be awarded through an application process (**competitive grant programs)** and may be created as a **matching grant**, where funding is also required to be contributed by a subnational government. For example, the Swiss Federal Agglomeration Programme provides contributes 30% to 50% funding to the selected investment projects, with the corresponding subnational government required to contribute remaining funding (See Case study 11 in Annex A). Various other **conditions on grants** may also be in place with the aim of ensuring that subnational government investment aligns with wider policy objectives (environmental, safety, private investment facilitation, etc.).

Featured tools:

Regional development funds	National or higher-level governments may establish a specific regional development fund to administer grants in a way that supports regional development and infrastructure investment. This approach seeks to harness grants to address multiple, inter-linked and long-term development objectives, beyond single infrastructure investments in line with the mandate of the fund. For example, the *Fondo Nacional de Desarrollo Regional* in Chile is a Fund for regional development that has the objective of achieving balanced territorial development. (OECD, 2021[2])
Viability gap funding	Viability gap funding involves grants being provided for PPP infrastructure projects that are economically justified and viable for private investors, but would not otherwise receive financing. In general, the rationale is to improve the financial feasibility of the project for private investors and ensure that public services offered by the infrastructure are provided at an affordable rate. Funding may come with certain conditions, such as to support projects where private sector sponsors are selected through competitive bidding, encouraging projects that use the 'user-pays principle', or supporting projects with a minimum investment cost. For example, viability gap funding in India provides funding up to INR 10,000,000 (USD 12.6 million) for each project that is approved for the scheme (Indian Department of Economic Affairs, 2019[50]).

5-minute break
Featured Tools

- 11亿元 is invested in building the new campus of NSU （新西伯利亚国立大学）
- Do you think there could be some potential problems with Matching grants? Regions with a deficit budget are out of the Matching grants – they can not make a contribution as a co-funders.

2107574011Chenyang Wu
the capacity to provide co-funds differs

2107574011Chenyang Wu
Does it mean that the subnational government need to co-fund the same amount of money as what the federal government grant them for investment?

- It depends… For instance, for tourism investment projects in Russian Far East Federal District, the Regional government should co-fund 1/3.

Competitive grant programmes	Competitive grant programmes allocate funding to subnational governments based on the quality of investment proposal against a set of defined indicators and criteria, rather than formulas - with an aim to ensure that funding goes to projects that provide the highest potential net benefits. Competitive grant programmes may be linked to existing investment and development strategies or programs to ensure that the funds are used to pursue strategic objectives. Competitive grants might consider differences in the level of institutional capacity of subnational governments to avoid grants being received by governments with higher capacity to prepare applications. For example, in Switzerland, The Swiss Federal Agglomeration Programmes provide competitive grants for individual and public transport infrastructure (See Case study 11 in Annex A).
Matching grants	Matching grants involve the recipient contributing a certain share of its own funding to "match" the original grant (also known as co-funding). For matching grants, effective grant design might consider the fiscal capacity of subnational governments given that some subnational governments may not have the same resources to co-fund investments or institutional capacity to prepare high quality funding applications. For example, the European Regional Development Fund aims to strengthen economic, social, and territorial cohesion in the European Union by correcting imbalances between its regions and involves co-funding from regional and local governments. (EC, 2022[51])
Conditions on grants	Conditions on grants can help to ensure that subnational infrastructure investments are undertaken in line with broader policy objectives. Conditions on grants may ensure funding is used in line with specific objectives or principles relating to environmental performance, ex-ante economic evaluation requirements, implementation of accompanying reforms, and cooperation with other governments, stakeholder engagement or involvement of the private sector, among other areas. The use of conditions, especially earmarking, should be carefully considered to help achieve objectives while avoiding excessive resource and administrative burdens.

Tax revenues

Among G20 countries, taxes represent 39% of total subnational government revenue (OECD/UCLG, 2019[17]) and many subnational governments harness a portion of this tax revenue to fund infrastructure investment. The spectrum of subnational government taxes varies significantly across countries. They may include 'shared taxes', such as value added taxes (VAT), personal income taxes (PIT) and corporate taxes (CIT), or include 'own-source' taxes, often property taxes, sales taxes, vehicle and fuel taxes and some environmental taxes.

Property taxes are often a key source of revenue for subnational governments and the revenue raised from these taxes has a direct link to the quality of local infrastructure and public services. Among G20 countries, recurrent property taxes account for 1.3% of GDP, 27.5% of subnational tax revenue and 8.9% of total subnational government revenue. Property taxes have a lot of merits (stable tax base, solid return on tax collection, lack of vertical tax competition, a link to infrastructure provision, etc.); however, the proportion of property taxes within subnational tax revenue still varies considerably across countries. One of the main constraints is that almost all countries encounter is the difficulty of calculating the value of tax bases. Beyond this, in many countries, the lack of an efficient and reliable cadastre and land registry, and procedures to resolve land disputes are an obstacle (OECD, 2022[52]). In some countries, overcoming these constraints and implementing property taxes can provide an important way to support infrastructure investment (OECD, 2021[2]).

In most cases, subnational government taxes are not earmarked (or hypothecated) to fund specific interventions or infrastructure. Indeed, often it is considered better to avoid earmarking of taxes to allow subnational governments to allocate revenue to the most productive priorities as part of overall budgeting processes (Christen and Soguel, 2021[53]). However, there are some examples where earmarked taxes are used by subnational governments to support infrastructure investment. This can help to create a visible link between taxation and expenditure, which may increase public acceptance of new taxes.

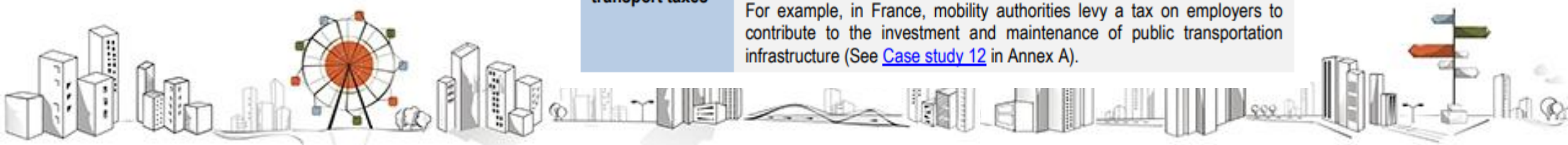
Examples of earmarked taxes can include **transport taxes** to help fund transport infrastructure and **carbon taxes** to fund investments in the green transition. In France, Versement Mobilité is a tax that is earmarked to help fund sustainable local public transport investments (See Case study 12 in Annex A). In Boulder, Colorado (United States) a local carbon tax has been used to support green investments (See Case study 13 in Annex A). Given the important link between infrastructure investment and property taxes, many infrastructure investments also look to use **Tax Increment Financing** to support infrastructure investment. This mechanism typically allocates expected increases in property taxes across a defined area towards the repayment of financing for that investment.

Featured tools:

Property taxes	Subnational governments often apply taxes on properties (buildings and land) within their jurisdictions. Property tax is an ad valorem tax on real estate, assessed by local government and paid by the property owner (individuals or businesses). Almost all countries encounter difficulty in calculating the value of tax base for property taxes. In an increasing number of countries, the tax base is calculated based on the value of the property, which can be the rental value or the market value. Beyond valuation and revaluation difficulties, a primary obstacle in many countries to the efficient collection of this tax is the lack of an efficient and reliable cadastre and land registry, including procedures to resolve land disputes. For example, in countries like Australia, Canada, Ireland, New Zealand and the United Kingdom, immovable property tax represent between 85% and 100% of local tax revenue (OECD/UCLG, 2019[17]). In South Africa, in Johannesburg, income from the property tax is used to pay for a wide range of public services, including infrastructure maintenance. (City of Johannesburg, 2018[54]).
Tax increment financing (TIF)	TIF supports subnational governments to finance infrastructure investment by earmarking future property tax revenue to help repay the financing used for the investment. To harness TIF, a local government identifies a Tax Incremental District (TID) and relevant infrastructure projects in that district. As property values or rates rise, the municipality uses a portion of future revenues in the TID to repay the investment financing. The use of a TIF requires robust real estate and economic conditions, as well as property records and valuations. For example, TIF is to be used in Medellin, Colombia to finance 45 projects from 2021 to 2035 in the city's innovation district. (World Bank, 2021[55])

Featured Tools

Carbon taxes	Carbon taxes are a levy on carbon emissions or carbon emission equivalents designed to account for the negative external cost of pollution. These instruments are sometimes referred to carbon pricing and are widely recognised as one of the most efficient ways to reduce emissions while incentivising innovation. (IPCC, n.d.[56])For example, in Boulder, Colorado a carbon tax with different rates for residential, commercial and industrial electricity users has been in place since 2006 (See Case study 13 in Annex A).
Tourism taxes	The use of tourism taxes, such as hotel room charges, have been increasing for more than a decade as a local government tax. In quite a few cases, local governments use tax revenue on restoration of cultural heritage, development of tourism infrastructure, nature preservation, or compensation for local citizens for noise pollution from air traffic. Such a tax needs to be carefully designed to consider any effect on local tourism, while also seeking to raise funding towards investments in infrastructure and services used by tourists. Tourism taxes can sometime also aim to lower tourism demand in places where excessive tourism is seen to have disruptive impact on a city or region. For example, the City of Venice in Italy uses an accommodation tax levied on visitors to invest in the restoration and salvation of tourist attractions and infrastructure (Venezia Unica, 2014[57]).
Mobility/ transport taxes	Taxes levied on users or beneficiaries of transport infrastructure. These taxes might be levied in many different ways, such as a flat rate per vehicle per year, or by taxing train passengers per kilometer (European Environment Agency, 2015[58]). For example, in France, mobility authorities levy a tax on employers to contribute to the investment and maintenance of public transportation infrastructure (See Case study 12 in Annex A).



User charges and fees

User charges and fees are levied on individuals or companies who use infrastructure and services provided by subnational governments or their related entities (e.g. water, electricity, gas, sewage, garbage collection, transport, etc.). These charges and fees often help cover the ongoing operational costs of infrastructure, but may also be used to repay financing from the initial investment. In some countries, specific subnational SOEs (or local public companies) may leverage user charges and fees for providing infrastructure and services (e.g., municipal water companies). In a user-pays PPP, user charges and fees will help to cover some of the initial investment and operating costs by the private sector. Among the G20 countries, user charges and fees represent around 10% of subnational government revenue (unweighted average, (OECD/UCLG, 2019[19])).

User charges and fees that might be collected by subnational governments include **utility charges**, administrative service fees, **parking fees and urban congestion charges,** public transport fares, tickets at sporting and cultural facilities (e.g., municipal theatres, concert venues, etc.) and various fines, penalties and forfeits (e.g., parking fines, speeding fines, etc.)[1]. Parking fees are a common source of revenue for local governments that can be targeted to reduce congestion and support local transport infrastructure investment. For example, the City of Bogota (in Colombia) has developed the *Pico y Placa Solidario* Programme to reduce road congestion and support the public transport system (See Case study 14 in Annex A).

There are several limitations to the development of user charges and fees, including the legal capacity of subnational governments to create and determine the level of such fees in areas considered as essential (e.g. energy), the capacity and willingness of users to pay and capacity management (OECD, 2019[59]). While charges and fees, when designed appropriately, can provide a direct and equitable link between the beneficiaries of infrastructure or related services and payment, they can also create a barrier to access those infrastructure and services for lower socio-economic groups. Considering the capacity and willingness of users to pay may support the implementation of tiered user charges, such as with transport concession fares, or direct subsidies to lower-income households.

Featured tools:

Utility charges	Utility charges are collected from the users of utility services (e.g. sewage, water and publicly provided electricity). Charges may be incurred based on a volumetric basis and/or as a regular fee. Utility charges are typically used when benefits of the infrastructure or related services accrue to identifiable individuals or households and the payment of the charges varies with consumption. For example, water charges in Cape Town are calculated on an increasing scale based on the circumference of the metered connection. These costs are used for repairs and maintenance programmes of the city's water supply system. (City of Cape Town, 2022[60])
Parking fees and urban congestion charges	Parking fees and urban congestion charges can seek to prevent traffic congestion and help to reduce air pollution, carbon emissions and noise pollution, while also generating revenue for transport improvement in urban areas. Parking fees are charged by local governments through various approaches (inspectors, meters, electronic tickets) with an aim to discourage driving and reduce congestion. Congestion pricing is another travel demand management approach that charges a fee for vehicles which enter certain areas. Both parking fees and congestion charges can vary with the time of day to manage demand. For example, in Bogota, Colombia, where vehicles were only allowed to drive every other day, a pay-to-opt-out scheme was introduced, which was complimented by on-street parking fees in 2021 (See Case study 14 in Annex A).

Asset revenues

Subnational governments may own and manage substantial asset portfolios, which can include land and infrastructure. Assets can provide revenue for subnational governments (e.g., property income[2], rental income[3]) and have operational and maintenance costs. Subnational governments can seek to adopt a portfolio management approach to effectively manage these assets in the long-term public interest (United Nations, 2021[61]). This might involve seeking opportunities to increase asset revenues, to create additional benefits from existing assets (for example, by optimising the use an existing rail network) or to decrease whole-of-life costs. While creating additional benefits and decreasing costs does not create 'additional' funding it can lower future funding requirements, meaning that funding can be used for other priorities.

In some cases, subnational governments may seek additional revenue by **leasing public property or land** to private users, particularly if assets are not being effectively used for public purposes and the government has a reason to retain public ownership. Leasing can create income for subnational governments to support the operations and maintenance of that property. It can also provide surplus income to be invested in other infrastructure or used for other purposes. In some specific infrastructure sectors (e.g., urban rail transit, regional highway), subnational governments (and/or related entities) can also use commercial leasing (e.g., operation of advertisement resources) to generate additional revenues for infrastructure. This is the case of the Shenzhen Metro Group in the People's Republic of China (See Case study 15 in Annex A).

As government assets are 'non-renewable' resources they need to be carefully managed over time; however, in some cases, subnational governments may seek to divest public assets. Divestment is generally considered relevant where continued ownership is no longer considered to be in the long-term public interest. Divestment might be considered from the perspective of maximising long-term 'public wealth' (Dag Detter and Stefan Fölster, 2018[62]). This might be achieved by ensuring that funds released from any divestment are used effectively. An **asset recycling programme,** for example, seeks to ensure that funding from divestment of commercially viable assets is used for new productive infrastructure.

Strong regulatory and institutional frameworks are required to ensure that subnational government assets are managed effectively and in the long-term public interest (United Nations, 2021[61]). Long-term leases or asset divestment can reduce public control over land and assets, which can result in inefficiencies and reduce equity and accessibility. It can also increase the cost of future public interventions as, for example, the sale of public land might prevent public upgrades in the future without expensive land acquisition.

Featured tools:

Public property or land leasing	Subnational governments may lease land or buildings while maintaining public ownership. This can provide income for these governments over a defined period, while also retaining control over future uses of that land or asset. Property leasing can be complex, and subnational governments need to carefully consider the tenure and proposed use of leased premises, as well as other legal obligations.
Asset recycling	Asset recycling involves the divestment or sale of an asset with the explicit purpose of using proceeds to fund another investment. While this method provides funding in the short term, it does not generate any 'additional' funding over the long-term as future income from the assets is foregone. A prominent example was the Asset Recycling Initiative in Australia, where the national government supported state governments to divest existing assets (i.e. ports, electricity infrastructure) and use funding to invest in new infrastructure assets (i.e. metro lines, highways). For example, in Australia the Asset Recycling Initiative incentivised state governments to divest assets through a contribution valued at 15% of the assessed sale value. AUD 5 billion was made available to States and Territories through this initiative. (Parliament of Australia, n.d.[63])

Land value capture

Infrastructure investment and other policy interventions can result in significant increases in the value of nearby land. Capturing some of these increases can provide subnational governments with an important source of revenue.

Land value capture refers to policies that allow public authorities to recover some of the increases in private land value that result from government actions, such as the infrastructure provision or the alteration of land use regulations (OECD, 2017[64]). Land value capture instruments seeks to capture 'windfall gains' from public interventions that may materialise in increased land prices (Smolka, 2019[65]). Land value capture is most common seen in large or growing urban areas. It has particularly strong potential in developing countries faced with rapid population growth and high infrastructure investment needs.

The term 'land value capture' includes various taxes, user charges and fees, and other revenue sources. The *OECD-Lincoln taxonomy of land value capture instruments* highlights five main types of land value capture: **developer obligations**, **infrastructure levies**, **charges for development rights**, **land readjustment** and **strategic land management** (OECD/Lincoln Institute, 2022[66]). Alongside charges for development rights, some jurisdictions also allow for development rights to be traded as **transferable development rights (TRDs)**. While TDRs may not provide 'additional' revenue in subnational government budgets, they can be an effective tool to avoid high land acquisition costs and support acquisition processes. In Hyderabad, India, for example, transferable development rights supported land acquisition process as part of a Strategic Road Development Plan (See Case Study 16 in Annex A).

Land value capture instruments are often complex and can face a number of obstacles. For example, there may be a lack of an adequate legal framework on land use, failure to consistently apply regulations (when they do exist), absence or dysfunction of land markets, insecure property rights, potentially high initial costs, insufficient government capacity and implementation problems, among other challenges. One key technical difficulty is quantifying the incremental value generated by public interventions. Governments may also struggle to strike the right balance between capturing a fair value and providing incentives for private sector market participation in development.

Featured tools:

Developer obligations (also known as impact fees, negotiated exactions, development charges, linkage fees, parkland dedication, etc.)	*"A developer obligation is a cash or in-kind payment designed to defray the costs of new or additional public infrastructure and services private development requires."* (OECD/Lincoln Institute, 2022[66]) These obligations are most often linked to obtaining development approval to develop or build on a land parcel. In some countries, developers are required to build affordable housing in exchange for approval. This practice, called inclusionary zoning, can be viewed as a form of developer obligation. Unlike the infrastructure levy, developer obligations are triggered by the initiative of private developers and land owners. The obligations can be either negotiated between the government and developers, or calculated using a fixed formula.
Infrastructure levies (also known as betterment contributions, betterment levies, special assessments, etc.)	*"An infrastructure levy is a tax or fee levied on landowners possessing land that has gained in value due to infrastructure investment initiated by the government."* (OECD/Lincoln Institute, 2022[66]) Subnational governments can levy a fee or tax from landowners possessing land that has gained in value due to infrastructure investment initiated by the government. Infrastructure levies may be used to finance the construction and upgrade of sidewalks, streets, water mains, storm sewers and sewers. Levies are either one-off or spread over several years. For example, local councils in the United Kingdom can levy a charge on new developments to help them deliver needed infrastructure to support the development. (United Kingdom Government, 2022[67])

10-minute break till 10:00

10-minute break till 10:00

Charges for development rights (Related concepts include sale of development rights, sale of air rights, density bonus and transfer of building rights.)	*"Charges for development rights are cash or in-kind contributions payable in exchange for development rights or additional development potential above a set baseline."* (OECD/Lincoln Institute, 2022[66]) Subnational governments can charge developers for additional development rights above a defined land-use, density and/or height baseline, but within the maximum level permitted by the zoning plan. Different flexibility can be built in this mechanism: in some cases, developers can bid to purchase development rights in the form of higher floor area ratio certificates at an auction. For example, in Sao Paulo, Brazil the government provides Certificated of Additional Construction Potential to generate revenue for public infrastructure projects. (WRI, 2020[68])
Land readjustment	*"Land readjustment is the practice of pooling fragmented land parcels for joint development, with owners transferring a portion of their land for public use to capture value increments and cover development costs."* (OECD/Lincoln Institute, 2022[66]) Land readjustment is where privately-owned, contiguous plots of land are pooled and developed jointly. It is often accompanied by zoning changes or relaxed density regulations so that newly developed land becomes more valuable. In turn, landowners provide a share of their plots for public infrastructure and services, such as public roads, utilities and parks. Landowners are returned a smaller plot of land that is nonetheless more valuable due to the improvements made. Land readjustment can be initiated by local governments or private landowners. The instrument is referred to as land pooling in some countries. For example, land readjustment was used in Ahmedabad, India in order to carry out the Sabarmati Riverfront Development (World Bank, 2015[69]).
Strategic land management	*"Strategic land management is the practice of governments actively taking part in buying, developing, selling and leasing land to advance public needs and recoup value increments borne through public action."* (OECD/Lincoln Institute, 2022[66]) With strategic land management, governments buy land or use existing land holdings to extract values from them, which can in turn be used to fund public infrastructure and services. If governments acquire land at pre-development prices, they can fully capture increases in land value that are due to public development or regulatory changes. Governments can recover land value gains with the sale or lease of rezoned and developed plots that are greater in value. Similarly, governments can lease usage rights, capturing value increments through higher rents. For example, in Hong Kong, the government provides the MTR (Mass Transit Railway) with development rights at stations that can be converted into land by paying a land premium based on the land's value without the railway. The MTR then builds a railway, partners with developers to build properties, and receives a share of the profits, which it reinvests in infrastructure. (OECD, 2021[2])
Transferable development rights	The principle of Transferable Development Right (TDR) is to unbundle the development potential of a given property from the land, and make the development rights a separate commodity, which a property owner can choose to sell at a negotiable price. In some cases, this is used to allow public authorities to obtain space to provide facilities or infrastructure by compensating an owner without a monetary payment. In general, a property owner can obtain TDRs from a local public authority in the form of certificates, which the owner can subsequently use for a property development or trade. For example, TDRs have been used in Indian cities to acquire land for infrastructure projects, including in Hyderabad (See Case study 16 in Annex A).

Financing instruments to support subnational infrastructure investment

Financing instruments (including for credit enhancement)

Loans	Bonds	Equity	Guarantees
Loans are the most accessible form of finance for subnational governments. Loans are provided by a public or private financial institution to support an investment project or large investment programme.	Bonds are debt that is securitised through an underwriter and is issued on domestic or international capital markets. In some countries, subnational governments can issue a variety of different types of bonds to finance investment.	Equity is capital-at-risk provided in return for an ownership share of an asset or entity with a potential financial upside. Equity may be invested in PPPs, partially-owned SOEs or private infrastructure companies.	Guarantees are not financing instrument in themselves, but provide credit enhancement or credit substitution to a debt instrument, such as a loan or a bond. These instruments can thus help to improve the creditworthiness of subnational government debt for investors
57% of subnational government debt across G20 countries (OECD/UCLG, 2019[19])	27% of subnational government debt across G20 countries (OECD/UCLG, 2019[19])	In 2019, 31.5% of finance for infrastructure investment in low and middle-income countries was equity investment (World Bank, 2019[70]).	
Featured tools			
Project loans Concessional loans Green loans	General obligation bonds (municipal bonds) Revenue bonds and project bonds Thematic bonds (e.g. green bonds)	Impact investing Equity in PPPs Blended finance	Performance guarantees Financial guarantees
Case Studies			
17. Low-cost loans to support local government infrastructure investment (Australia)	18. Vivaracqua Hydrobond in Veneto (Italy)	19. The International Municipal Investment Fund (International)	20. The Municipal Guarantee Board (Finland)

Loans

Loans are one of the main sources of financing for subnational governments and are often the only source of financing available to smaller governments. Loans represent approximately 40% of subnational government debt in G20 countries, and 57 % of subnational government debt globally (unweighted average (OECD/UCLG, 2019[17])).

Loans are the most accessible form of finance for supporting subnational infrastructure investment. They are particularly important for smaller subnational governments and those who cannot directly access capital markets to issue bonds. Loans are often customisable and can come with flexibility in terms of scale, duration and repayment schedule (OECD, 2015[71]). Depending on the country and relevant fiscal and regulatory frameworks, subnational governments might be able to access loans from a wide variety of financial providers, including commercial banks, multi-lateral development banks and public financial institutions. In some cases, financial intermediaries may issue bonds on capital markets and on-lend to subnational governments (see 'access to financial markets' section).

A wide variety of different loans and lenders exist. Three particularly relevant types of loans for subnational government infrastructure investments are commercial loans, **concessional loans** and **green loans**. Commercial loans are provided at a market rate, while concessional loans (or low-interest loans) are provided at a below-market interest rate. The lower interest rate is achieved through a subsidy provided by a higher level- government or other institution who is seeking to incentivise investment. In Australia, for example, state governments often seek to support local government investment and borrowing by providing low-costs loans and pooling financing needs (See Case Study 17 in Annex A). **Green loans** are loans that must be allocated to support defined 'green projects' following an industry definition, such as those defined by ICMA (Loan Market Association, 2018[72]).

Loans may be also provided to subnational governments as structured project finance. **Project loans** are typically used for larger infrastructure projects with defined revenue streams, such as PPP projects. These loans typically involve 'ring fencing' assets, revenues and costs from a governments balance sheet through a special purpose vehicle. In the case of default, lenders are then able to recover money from the 'ring fenced' assets, but not from other government assets or revenues (non-recourse) unless a specific guarantee or other arrangement is in place. Project loans are typically leveraged in public-private partnerships (PPPs).

Featured tools:

Concessional loans	Subnational governments may be able to access concessional loans that provide favourable terms, particularly lower-interest rates. Concessional loans may be subsidised by a higher level of government or a multi-lateral development bank, typically with the aim to help crowd-in other private investment. For example, concessional loans are used in Australia to incentivise local governments to undertake infrastructure investment (See Case study 17 in Annex A).
Green loans	Subnational governments have the potential to increasingly leverage green loans to support infrastructure investments. These loans are earmarked to be used for green purposes, such as funding of an eligible green project (i.e., renewable energy), as defined by an accepted standard. This requires subnational governments to have processes that allow them to identify green investment projects (green budgeting, taxonomies, etc.). For example, La Banque Postale in France launched green loans for local authorities in 2019 to finance infrastructure projects with high environmental impact, such as in waste recovery, energy renovation of public buildings, renewable energy generation and clean transport. (La Banque Postale, 2019[73])

Bonds

Bonds are debt instruments that are issued in capital markets and can be used to finance the construction of infrastructure (e.g. municipal bonds or sub-sovereign bonds). By issuing bonds, subnational government debt becomes tradeable on secondary markets, allowing multiple investors to purchase portions of that debt and allowing securitisation (OECD, 2015[71]).

Bonds make up 27% of subnational government debt in G20 countries and 12% globally (unweighted average, (OECD/UCLG, 2019[17])). While bonds represent an important portion of subnational government debt, the use of bonds by subnational governments varies significantly across countries and across levels of subnational government. In the United States and Canada, for example, up to two-thirds of subnational government debt is financed by bonds. Meanwhile, in many emerging and developing countries there is limited or no use of bonds by subnational governments. In Europe, bond issuance is mainly done by state or regional governments (Austria, Belgium, Germany, Spain, etc.), except in Norway and Sweden where local governments are active issuers.

Many different types of subnational government bonds exist. One of the main characteristics to define a bond relates to options for recourse in the case of default (i.e., for debt repayment). **General-obligations bonds** are backed by the government's ability and power to tax and raise revenues. This type of bond is an important and traditional source of finance for subnational governments but is not explicitly 'infrastructure finance' (OECD, 2015[71]). **Revenue bonds** or **project bonds** have repayment is linked to a specific revenue stream from a project. For revenue bonds, governments may not be explicitly liable in the case of default, but rather project assets and revenues are 'ring fenced' from other government assets. Another key characteristic of bonds relates to the how finance is used. A range of **thematic bonds** (e.g., green, climate, social, sustainability, sukuk, etc.) seek to align finance with policy objectives, such as to support the green transition.

Bonds have the potential to provide lower cost financing for subnational governments; however, subnational bond issuance can also entail high transaction costs arising from legal and commercial services, credit ratings, underwriters and bond issuance and compliance. The higher cost of bonds means that they are typically suited to large and long-term investment programmes or projects, and therefore often for higher levels of subnational government or large cities.

Bonds may be issued directly by a subnational government or through a financial intermediary acting on behalf of one or more subnational governments. While larger subnational governments may directly issue bonds as they have sufficient scale, smaller subnational governments may look to jointly issue bonds as occurs with "subnational pooled financing mechanisms". In some cases, subnational governments also have the option to aggregate projects and mini-bonds to reach the threshold for a larger bond-issuance (FMDV, 2021[74]). This is the case of the Viveracqua hydrobond, which was jointly issued by eight municipal water companies in Veneto region (Italy) to finance water infrastructure (Case study 18).

Featured tools:

General obligation bonds	A subnational government can issue bonds backed by its full capacity to levy and raise taxes for repayment. This means that the subnational government can repay debt obligations from any available revenue stream. The performance of such issues is linked more to the fiscal creditworthiness of the borrower, rather than the infrastructure asset (OECD, 2015[71]). For example, between 2020 and 2021, New York City issued USD 4.9 billion worth of general obligation bonds, with USD 2 billion going towards capital projects (New York City, 2021[75]).
Revenue bonds and project bonds	A subnational government can also issue bonds backed by a specific revenue stream (e.g. water tariffs) or revenue generated from a specific infrastructure project (e.g. toll fees from a highway). These bonds are typically sold directly to investors through the fixed income markets, generally have long-term maturities, pay fixed or floating coupon rates (and are sometimes zero-coupon bonds), and are rated by the major rating agencies (OECD, 2015[71]).
Thematic bonds (Green, Climate, Sustainable, Social, sukuk etc.)	A subnational government might harness various thematic bonds (green bonds, social bonds, climate bonds, sustainable bonds, sukuk etc.) to finance specific activities in accordance with relevant principles (i.e. Green Bond Principles). These bonds earmark money for specific purposes such as renewable energy, affordable housing and basic infrastructure. Scaling-up the use of these bonds, can be supported through guidelines, standards, reporting, certification, technical assistance, capacity building and credit enhancement (Climate Bond Initiative, 2015[76]). For example, in 2017, Argentina's Jujuy Province raised funding via a green bond tied to a 300-MW solar project. (Renewables Now, 2017[77]).

Equity

Equity is capital-at-risk provided in return for an ownership share of an asset or entity with a potential financial upside (OECD, 2015[71]). While the direct role of equity to support infrastructure investment by subnational governments is smaller than for debt financing, equity does have an important role to support infrastructure investment in regions and cities. In 2019, for example, USD 96.7 billion was invested in infrastructure in low and middle-income countries of which 31.5% was through equity investments and 67% was through debt (World Bank, 2019[70]).

Equity can support infrastructure investment in regions and cities through three main channels. First, equity can be directly invested in a subnational government's public private partnerships (PPP) through a 'special purpose vehicle' (SPV). With **equity in PPPs**, the financial upside for equity may come from a contractual performance or outcome related trigger that allows for a return above an original base case. If the 'equity upside' is to come from user fees (i.e. user-pays PPP), then the equity investor would consider if debt service coverage levels from those user fees will have to be high enough to support the potential equity upside payment. If the 'equity upside' is to come from government grants or availability payments (i.e. government-pays PPP), then the equity investor would consider if sufficient free cash flow or dedicated reserves from that payment stream remain available to support the potential equity upside payment.

Second, equity can be invested in private companies who support infrastructure investment in regions and cities. Many private companies support infrastructure investment and provide opportunities for equity investors. These can include planning and engineering consultancies, construction companies and infrastructure operators.

Third, equity might be invested where a subnational government does not maintain full ownership in a state-owned enterprise (SOE).

Two emerging areas of equity finance that have the potential to become increasingly relevant for subnational infrastructure investment are **impact investing** and the use of **blended finance**. With impact investing, investors seek to use investments to generate positive, measurable social and environmental impact, alongside a financial return (GIIN, 2020[78]). Impact investing is particularly relevant for infrastructure in regions and cities as this type of infrastructure has important social and/or environmental impacts. With blended finance, development finance is leveraged to mobilise additional commercial capital towards projects that contribute to sustainable development, while providing financial returns to investors (OECD, 2021[79]). Blended finance can mobilise a mix of grants, debt and equity to support sustainable development. The International Municipal Investment Fund, for example, was created by the United Nations Capital Development Fund and other international organisations to provide capital for investments in local infrastructure projects in emerging economies (See Case study 19 in Annex A).

Featured tools:

Impact investing	Impact investing seeks to support investments with positive and measurable social or environmental outcomes. While not explicitly linked to infrastructure, the infrastructure and energy sectors represents around 20% of total impact investments (GIIN, 2020[78]). For example, the Solar Impulse Foundation has developed the Infrastructure Impact Fund that uses an Environmental & Social Management System to ensure that projects follow certain sustainability and resilience requirements. (Solar Impulse Foundation, 2021[80])
Equity in PPPs	Equity investors can provide capital-at-risk in return for an ownership share of a special purpose vehicle established for a PPP project. For example, PPP projects include an equity share, which typically ranges from approximately 10-30% of the finance needed for an infrastructure investment (OECD, 2015[71]). In Indonesia, a PPP was used for the Umbulan Water Supply System Project (See Case study 23 in Annex A)
Blended finance	Blended finance is the use of development finance to mobilise commercial finance for sustainable development. This strategy focuses on unlocking private sector capital that would not have been invested without co-investors. (OECD/UNCDF, 2020[81]) For example, the International Municipal Investment Fund harnesses blended finance for investments in local infrastructure projects in emerging economies to support sustainable development and mobilise additional public resources (See Case study 19 in Annex A).

5-minute break

Guarantees

Guarantees are a credit enhancement instrument that can improve the willingness of finance providers to lend to subnational governments for infrastructure investments. Used appropriately, they are a powerful tool to mobilise finance for infrastructure investment in regions and cities. In many countries there may be significant scope for more and better use of guarantees (Garbacz, Vilalta and Moller, 2021[82]).

When lending to a subnational government, finance providers usually assess the governments 'creditworthiness' to understand if debts can be repaid (sometimes supported by credit rating agencies). Due to a variety of factors, many subnational governments are not considered to have a sufficient level of creditworthiness to access affordable finance, especially in developing and emerging economies. For example, in 2013, fewer than 20% of the 500 largest cities in developing countries were deemed creditworthy in local financial markets and less than 4% in international markets (World Bank, 2013[83]).

National governments, public financial institutions and multi-lateral development banks may provide guarantees to help mobilise finance for subnational infrastructure investment. When provided by a central government, guarantees might be defined a "sovereign obligation under a binding or potentially binding written document (such as a contract or comfort letter) to satisfy certain obligations of an underlying contract, or to protect the beneficiary from defined losses if specified conditions occur" (Lu, Chao and Sheppard, 2019[84]). This means that guarantees can help to protect a finance provider (i.e., the beneficiary of the guarantee) from risks that they have little control over or may be unwilling to bear which can make a providing finance more acceptable and financeable. Guarantees can cover many types of risks, with two large categories of guarantees being "**performance guarantees"** and "**financial guarantees"**.

Guarantees, however, create contingent liabilities that need to be carefully evaluated and managed. The best way to mitigate risk from issuing guarantees is to ensure that a project meets best practices in how it is selected, prepared, and structured (Lu, Chao and Sheppard, 2019[84]). Before a guarantee is leveraged, a project should be determined to be of a high-quality, value-for-money and meet other policy objectives. To manage the contingent risk of guarantees, specific public bodies may be established to evaluate and provide government guarantees to subnational governments. In Finland, in order to safeguard the joint financing of Finnish municipalities and reduce their borrowing costs, the Municipal Guarantee Board provides guarantees to accompany municipal borrowing (See Case study 20 in Annex A).

Featured tools:

Performance guarantees	Targeted guarantees aimed at covering key risks or government obligations for a project (e.g. political, foreign exchange, supply, purchase). Guarantees for PPP projects are almost always structured as performance guarantees to reinforce certain government undertakings or cover the risk of a guaranteed government counterparty's failure to perform targeted or specific risks or obligations linked to underlying PPP contracts or concessions (Lu, Chao and Sheppard, 2019[84]). This type of guarantee involves the government committing to meet certain contractual requirements under a project agreement.
Financial guarantees	A financial guarantee is a commitment to service the debt in case of a borrower default. This means that the guarantor will "step in" to the underlying loan agreement to make debt-service payments on behalf of the borrower (e.g., subnational government or SOE) in the case of default. Such guarantees are most common where a Ministry of Finance provides a guarantee to lenders for borrowing undertaken by a subnational government or SOE for a particular infrastructure project. They are rarely offered for PPP projects as they can facilitate unbalanced risk allocations. Financial guarantees are often structured and construed as "unconditional, irrevocable, and liquid (requiring timely payment)" meaning that the claim process is simple and straightforward (Lu, Chao and Sheppard, 2019[84]). If not used carefully, this type of guarantee has the potential to create large financial risk that could greatly impact budget and borrowing limits of the guarantor. In Finland, for example, the Municipal Guarantee Board (MGB) provides guarantees to support the lending of MuniFin (a municipal credit institution) to Finish municipalities (See Case study 20 in Annex A).

Approaches to harness funding and financing for subnational infrastructure investment

Public infrastructure approaches

Traditional Public Procurement	Subnational State-Owned Enterprises	Subnational Public Private Partnerships
A subnational government body might directly procure infrastructure from the private sector through 'traditional public procurement', where the funding and financing for the infrastructure is provided from a subnational governments balance sheet. Innovations relating to traditional subnational government procurement include the use of green public procurement and socially responsible procurement.	SOEs owned by subnational governments – such as municipally owned corporations or local public companies – have a key role in many cities and regions to procure or directly deliver infrastructure investments and operate infrastructure. These enterprises may be established by a subnational government under relevant legislation to be partially or completely independent from other government institutions. They typically provide a specific function, such as to operate public transport networks or deliver an infrastructure investment.	Public-private partnerships (PPPs) can be used by subnational governments to support a specific infrastructure project and operations of infrastructure. The broad definition of a PPP used in this report includes contracts for public services where the private sector has significant. A PPP can be funded and financed through a wide range of instruments, including a mix of grants, user charges, loans and equity.
Featured tools		
Green public procurement Socially responsible public procurement	Development authority Transport authorities Local utility companies Infrastructure delivery authorities	User-pays PPP Government-pays PPP
Case studies		
21. Green procurement system in Valladolid (Spain)	22. Supporting Green Municipal energy utility: The German Stadtwerke (Germany)	23. Umbulan Water Supply System PPP project (Indonesia)

Traditional and innovative public procurement

Traditional public procurement involves procuring the private sector to design and build public infrastructure on behalf of a subnational government or related entity. Traditional public procurement typically involves a build-only or design and build contract. For a build only contract, the design is completed by another organisation. Once construction is completed, the subnational government will assume responsibility for the infrastructure asset.

Subnational governments typically fund and finance traditional public procurement directly from their balance sheet as part of budgeting and public financial management processes. This means that funding and financing is not usually linked to a specific project but is considered at as part of general budgeting processes. In some cases, however, funding may be earmarked for a specific infrastructure (e.g., tax increment financing) and financing may be raised for a specific project (e.g., project financing).

To support effective public investment, contracts should be awarded based on a competitive and merit-based selection processes. Contracts typically include payments made at defined stages at a pre-determined price. After completion, responsibility for fixing defects may rest with the contractor for a defined period. Operational and maintenance tasks related to the infrastructure may be contracted out to another party under a separate agreement.

During procurement, subnational governments may seek to innovate by supporting other government priorities, including meeting green or social policy objectives. **Green public procurement** involves ensuring that contractors meet certain green requirements, such as standards relating to energy efficiency, carbon emissions or water use. **Socially-responsible public procurement** involves social objectives, such as supporting disabled workers. Green and social criteria may be included in tender documentation and used to assess bids. For example, the Municipality of Valladolid enacted a Municipal Ordinance in 2018 to promote social efficient procurement (See Case study 21 in Annex A).

Featured tools:

Green public procurement	Involves using the purchasing power of subnational governments to choose goods, services and works with a reduced environmental impact in order to contribute towards sustainability goals. Green public procurement can help align purchasing decisions with wider subnational government objectives. For example, in 2008, the Italian government approved the Green Public Procurement Law, which made public authorities at all levels of government maximise the diffusion of Green Public Procurement. (Direzione Generale Economia Circolare (EC), 2017[85])
Socially responsible public procurement	Involves seeking to use the purchasing power of subnational governments to choose goods, services and works with a positive social impact. This can involve inclusion of socially responsible criteria in public procurement processes. For example, in Valladolid in Spain, the municipal government enacted an ordinance to set out criteria for public procurement that is more socially inclusive and environmentally sustainable (See Case study 21 in Annex A).

Subnational State-Owned Enterprises

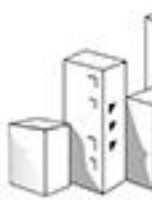
Subnational State-Owned Enterprises (SOEs) – such as municipally-owned corporations or local public companies – have a key role to invest and operate infrastructure on behalf of many subnational governments. SOEs can either directly design and construct infrastructure or they can procure private companies to deliver infrastructure. SOEs also often have direct responsibilities for raising funding and financing for investment.

While there has been a decline in state-ownership over recent decades, national and subnational government SOEs continue to account for about 20% of investment and 5% of employment globally (ADB, 2020[86]). In emerging markets and low-income developing countries, SOEs are responsible for 55% of infrastructure investment, as compared to 28% of investment by public entities (treasuries, ministries, local public companies) and 17% by the private sector (World Bank, 2017[87]). Local public companies owned by subnational governments also have important responsibilities in many developed countries. In Europe, for example, the number of local public enterprises doubled between 2008 and 2020, increasing to nearly 32 000, especially in Germany, Austria, France, Italy, and Spain.

SOEs are corporate entities recognised by law as an enterprise with government ownership. Policy reasons given by governments for establishing SOEs include supporting economic and strategic interests, supplying specific public goods or services where market failures exist, or maintaining a state-owned monopoly when market regulation is deemed infeasible or inefficient (OECD, 2018[88]). When properly managed, municipal SOEs may support the efficiency of infrastructure development through effective corporate governance, access to innovation and skills, and pooling of external financial resources. These organisations can often be flexible and responsive, while also upholding the general interest and community values (OECD, 2017[89]). Types of SOEs established by subnational governments to support or undertake infrastructure investment might include **development authorities**, **local utility companies** (i.e. water, sewerage, energy, waste, etc.), **transport authorities**, **infrastructure delivery authorities** and public financial institutions, among many other types of SOEs. In Germany, Stadtwerke – municipally owned energy utilities are main actors in the provision and management of energy services for citizens (See Case Study 22 in Annex A).

SOEs overseen by subnational governments are often directly responsible for accessing funding and financing to support infrastructure investment. They might directly raise funding through user charges (e.g., tolls, water and electricity rates, admission fees) or other funding sources (e.g., rental income, investment returns, etc.) or they may receive grant funding. Depending on the fiscal and regulatory framework, SOEs may also be able to access finance for investment, including by issuing bonds on capital markets.

Where they are established, governments at all levels should seek to ensure that SOEs operate effectively, avoid simply crowding-out private sector companies and ensure accountability and transparency. Better governance, capacity to manage local public companies and a stronger rational for public intervention can correlate with higher performance. (OECD, 2015[90]; IMF, 2020[91]).



Featured tools:

Development authority	Subnational governments may create a development authority to plan and oversee the development or redevelopment of land in a defined geographical area (i.e., an urban redevelopment authority). The organisation becomes responsible for coordinating land use, public investment and other public interventions. They may have defined objectives such as to maximise the value from investments or best leverage public land for economic development. For example, the Copenhagen City and Port Development Corporation (Denmark) is responsible for planning and facilitating the redevelopment of land in Copenhagen. (OECD, 2021[2])
Transport authorities	Subnational governments may create a SOE to oversee the transport network within a defined geographical area. Transport authorities may have a range of infrastructure responsibilities, including for planning, investment, operations and maintenance. They may be responsible for all or part of the transport network in the region, including for public transport and road infrastructure. For example, Tokyo Metro Co. Ltd. (Japan) is jointly owned by the national and municipal governments and is responsible for providing rapid transit in Tokyo (Tokyo Metro Co. Ltd., 2022[92]).
Local utility companies	Subnational governments may create a local utility company to oversee the provision of utility services within a defined geographical area where that utility service is not provided by the private sector. Utility companies may be responsible for all or part of the utility provision, including infrastructure planning, investment, operations, maintenance, and customer service. For example, in Germany, municipally-owned energy utilities, Stadtwerke, play an important role in the provision and management of energy infrastructure and related services (See Case study 22 in Annex A).
Infrastructure delivery authorities	Subnational governments may create SOEs to manage the delivery of major infrastructure projects or programmes. These may be created for a defined period of time and can have a specific mandate to deliver certain investments. They might hire specialist expertise to support delivery of the project during the project period. For example, the Major Transport Infrastructure Authority in Victoria (Australia) is responsible for the development and delivery of a AUD 90 billion transport infrastructure programme in Victoria (Victoria's Big Build, 2022[93]).

Subnational Public-Private Partnerships

Public-private partnerships (PPPs) are a common investment approach to harness funding and financing to support infrastructure investment, operations and maintenance. Across OECD countries, national and subnational PPPs represent around 5% of the total value of public sector infrastructure investment, although this is around 10% in some countries (OECD, 2018[94]; OECD, 2019[95]). Although PPPs represent a relatively small component of total public investment in many countries, they are an important investment approach for subnational governments in many countries. Although the average value of PPPs tends to be higher at a national level, subnational governments are responsible for a larger number of PPPs in OECD countries. In Australia and Germany, for example, approximately 90% and 80% of PPPs occur at the subnational level (OECD, 2018[94]).

A wide variety of different types of PPPs exist. A broad definition is that a PPP is "a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance" (World Bank Group et al., 2017[96]). This definition also includes public service contracts and concessions. A PPP is usually described by the type of asset involved (greenfield, brownfield), the role of the private party (design, build, finance, maintain, operate) and how the PPP is funded. A useful categorisation of PPPs models is through their funding model. A **user-pays PPP** is primarily funded by user charges, while a **government-pays PPP** is primarily funded through a defined payment scheme with funding ultimately provided from other government revenues (e.g., grants, taxes, property income, etc.). A PPP can also be funded by a mix of these two methods. In Indonesia, for example, the **Umbulan Water Supply System** is being delivered as a user-pays PPP with additional contributions from the national and provincial governments (see Case Study 23 in Annex A). This project is also being supported by a government guarantee.

Subnational government PPPs should identify robust funding sources to cover up-front capital costs, and operational and maintenance costs for infrastructure. This can follow a "hierarchy of possible revenue sources" beginning with maximising revenues from direct beneficiaries (i.e. User charges and fees), then exploring options to capture value from indirect beneficiaries (i.e. Land value capture) and then harnessing public money (e.g. Tax revenues, etc.) (World Bank, 2020[97]). Public funding (e.g. Grants and subsidies) and guarantees should be considered where the use of those funding sources represents value for money (World Bank, 2020[97]).

PPPs have significant benefits, costs and risks for subnational governments that need to be carefully assessed. PPPs are generally considered justified where they are affordable and produce greater value for money than would be provided by the delivery of public services or investment through traditional public procurement (OECD, 2018[94]; IADB, 2018[98]). The *OECD Principles for Public Governance of PPPs* outlines that when deciding whether to use a PPP, governments should "carefully investigate which investment method is likely to yield most value for money" and consider "key risk factors and characteristics of specific projects" (OECD, 2012[99]) Benefits, costs and risks of PPPs need to be considered against other infrastructure delivery models (OECD, 2019[42]).

Potential benefits of PPPs for subnational governments may include enhanced project selection due to private sector analysis and innovation, improved access to private sector expertise and better lifecycle management due to long-term incentives, among other areas (World Bank Group et al., 2017[96]; OECD, 2012[99]). For example, the private sector might better manage certain risks (e.g., construction, implementation of user charges, operations) and have a stronger incentive to minimise whole-of-life costs, which might result in higher quality up-front investment that lowers ongoing operational and maintenance costs. In some contexts, a PPP may also provide access to alternative funding sources and financing instruments (for example, where a private provider is better able to implement user charges than a subnational government).

Subnational governments should consider if gains from these factors outweigh the cost of private finance, and the risks associated with PPPs (OECD, 2012[99]). Risks relating to the use of PPPs include the need to anticipate future asset needs (e.g., where changes are required to an asset after contract award), contingent liabilities created through the use of guarantees (see section on Guarantees), stakeholder considerations related to the implementation of user fees or the role of the private-sector (see section on

Co-ordination, cooperation and stakeholder engagement) and asset handover at the end of the PPP period. To address these risks, there is a need to clearly articulate the scope of a PPP project in tender documents and allocate risk at the outset. Risks specific to subnational governments particularly relate to institutional capacity and fiscal and regulatory frameworks.

Substantial institutional capability is required for subnational governments to successfully harness PPP projects. This includes the capacity to properly assess the potential benefits, costs and risks of a potential PPP, and to manage the subsequent development, approval, procurement, award and contract management (OECD, 2018[94]). Institutional capacity can be developed through targeted technical assistance programs or dedicated national or subnational government PPP Units (see section on Institutional capacity). In some cases, public sector expertise may also be supplemented by specialist experienced PPP consultants and advisers.

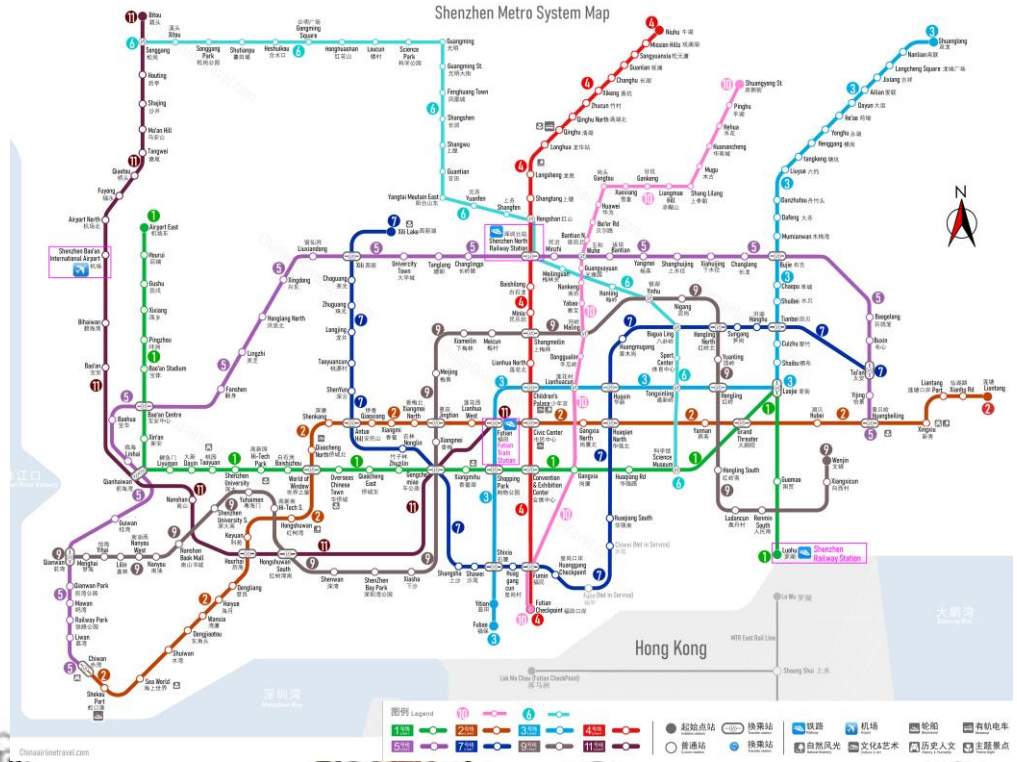
Fiscal risks relating to the use of PPPs by subnational governments are critical to consider. In some cases, PPPs risk being improperly used to overcome public financial management controls, which can create long-term fiscal risks (contingent liabilities) for subnational and national governments (World Bank Group et al., 2017[96]). Bypassing fiscal constraints is not a valid reason to choose a PPP over traditional public procurement (IADB, 2018[98]), and can potentially come at the expense of sound project preparation and value for money, and also create an "affordability illusion" (Eurostat, 2016[100]). In some cases, off-budget financing has exacerbated the potential fiscal risks caused by PPPs, which can allow upfront private financing to obscure the reality of long-term public funding required to support investments (IADB, 2018[98]). Furthermore, even small PPP projects do not necessarily mean small liabilities, so consideration should also be given to the full extent of contingent liabilities created through guarantees to PPP projects (see section on Guarantees).

Featured tools:

User-pays PPP	Subnational governments might adopt a user-pays PPP to support a range of different types of infrastructure investment (e.g. toll roads, water facilities, etc.). A user-pays PPP is where the "private party provides a service to users and generates revenue by charging users for that service" (World Bank Group et al., 2017[96]). In some cases user charges and fees (or tariffs, or tolls) may be supplemented by government payments, including payments to cover construction costs or subsidise operations. In Indonesia, for example, the Umbulan Water Supply System is being delivered as a user-pays PPP with additional contributions from the national and provincial governments (see Case Study 23 in Annex A). This project is also being supported by a government guarantee.
Government-pays PPP	Subnational governments may support the creation of government-pays PPPs to support the delivery of specific infrastructure investments. A government-pays PPP is where "the government is the sole source of revenue for the private party" (World Bank Group et al., 2017[96]). For these PPPs, government payments may depend on the asset or service being available at a contractually-defined quality (availability payments). They could also be volume-based payments for services delivered to users or other performance-based payments. For example, in Western Australia, a government-pays PPP was used to complete the Joondalup Health Campus. (Department of Health, Government of Western Australia, 2013[101])

Case study 1: Diversifying revenue sources for urban rail infrastructure: The “rail plus property” model of the Shenzhen metro in People’s Republic of China

Categories: Asset revenues, Land value capture. The PDF document has been sent to you in our Chat



Case study 1. Diversifying revenue sources for urban rail infrastructure: The “rail plus property” model of the Shenzhen metro in People's Republic of China

Categories: Asset revenues, Land value capture

Background: The People’s Republic of China (hereinafter ‘China’) is experiencing rapid urbanisation. By 2030, 70% of the country’s population will be living in cities, creating significant demand for housing and transport, especially for urban transit. Cities, however, face significant challenges in financing the growth of urban transit infrastructure, as well as its operations and maintenance. The construction of urban rail transit entails large-scale investments, high operational costs, long return cycle and large capital needs, making whole-of-life balanced financial planning and sustainable development a challenge in all countries. Furthermore, in consideration of residents’ ability and willingness to pay and the value provided, subway ticket prices in Chinese mainland cities are generally low and most subway lines find it difficult to breakeven by only relying on ticket revenue.

In the City of Shenzhen there are in total 431 kilometres of urban rail transit, among which 419 kilometres are metro lines (the rest being tramway). In 2021, the passenger volume of the 11 metro lines in Shenzhen reached on average 5.5 million per day. This creates a significant funding need for investment in infrastructure and supporting operations and maintenance.

Approach: Shenzhen Metro Group Co., Ltd., was founded in 1998 as a large-scale sole proprietorship state-owned enterprise (SOE) under the direct control of the Shenzhen Municipal Government. It assumes the main responsibility for construction and operation of the rail transit system in the city. It is responsible for over 90% of the whole transit system (388 kilometres of metro lines out of the total 419 kilometres, and the 12 kilometres of tramway). Its business scope includes preliminary research, design and construction of the metro project, as well as metro operation, resource business operation, property development and management, finance and fundraising in association with metro transportation.

In order to support the construction and operation of metro lines, the Shenzhen Metro Group Co., Ltd. has harnessed the model of "rail + property (R+P)". This involves developing and utilising the metro station space and lineside property to capture the value created from metro projects, which can be used to help fund the construction and operations of metro lines. This model can partly or fully fill the funding gaps of costly metro projects. The need to maximise land-value increments around transit stations ensures the dense concentration of housing, employment, business and advertising opportunities in these areas. This dense development further boosts transit ridership and increases transit’s farebox revenues (i.e., revenues collected from fare paying passengers either in the form of cash or pass sales revenue), thereby strengthening the financial performance of transit projects. In 2021, farebox revenues were around RMB 4.6 billion (before tax), accounting for 28% of the company’s total operational income.

At the same time, Shenzhen Metro Group Co., Ltd. operates advertisement resources, station commerce and trade, and communication resources along the rail transit lines. It also manages various properties along the metro lines, at rail transit hubs and in the metro superstructure. Business operation on ancillary resources represents the important part of “metro” in the “metro plus property” profit model. It mainly consists of four categories of resources: media and cultural resources, commercial resources affiliated with metro stations, telecommunication information resources and various other resources. Advertisements at stations constitute the main operating resource. Station advertisement includes print ads in trains, with media forms covering station lamp house, wall adhesive advertising, stair billboard, shield door adhesive advertising, billboard in trains, as well as advertisement on train handles, among other adhesive advertisements. Commercial resources affiliated with metro stations include commercial leasing at the station banks and the shops in the halls of the metro lines. According to the 2021 annual report of Shenzhen Metro Group Co., Ltd., the revenue generated from resource management was over RMB 1 billion, accounting for 6.3% of the Group’s total revenue, of which 24% was generated from media and cultural resources (RMB 246 million). Besides traditional metro resources such as advertisement, media, communication and commerce in station, the industrial chain of Shenzhen Metro Group Co., Ltd. has been extended to include design consulting, construction materials, hotel management, logistics, digital technology and other fields.

Answers

Chenyang Wu

In order to reach the sustainability and address the problem of funding, Shenzhen Metro Group harnessed the "R+P" scheme, which utilizes the property of the lineside transits such as advertising, commercial shops or even other services. Later it put forward the "One Chain Two Loops", aiming to maximize the utilization of the Metro's property and resources.

12:28

Tianzi Mao

1.the economic effect of harnessing model of "rail + property（R+P）" ： the dense concentration of housing, employment, business and advertising opportunities under the the model of "rail + property（R+P）" boosts transit ridership and increases transit' s farebox revenues

2.traditional resource management： the revenue generated from resource management such as operating advertisement resources, station commerce and trade, and communication resources along the rail transit lines.

Ivan

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21071574036Xinke Jiao

Shenzhen utilize R+P strategy to stimulate its metro development, using the neighboring resources along metro stations to reduce the financial burden of metro construction. This promotes the entire development of the city and bring benefits to society. And in return, it uses the metro resources to stimulate far development of the whole city' s development in business, housing and so many social aspects.

Case study 15: Diversifying revenue sources for urban rail infrastructure: The "rail plus property" model of the Shenzhen metro in People's Republic of China

Categories: Asset revenues, Land value capture

Background: The People's Republic of China (hereinafter 'China') is experiencing rapid urbanisation. By 2030, 70% of the country's population will be living in cities, creating significant demand for housing and transport, especially for urban transit. Cities, however, face significant challenges in financing the growth of urban transit infrastructure, as well as its operations and maintenance. The construction of urban rail transit entails large-scale investments, high operational costs, long return cycle and large capital needs, making whole-of-life balanced financial planning and sustainable development a challenge in all countries. Furthermore, in consideration of residents' ability and willingness to pay and the value provided, subway ticket prices in Chinese mainland cities are generally low and most subway lines find it difficult to breakeven by only relying on ticket revenue.

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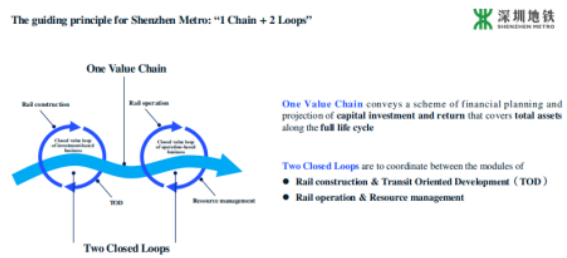
Shenzhen Metro Group Co., Ltd. has further developed an innovative "1 Chain + 2 Loops" model in recent years to promote the whole-of-life balanced financial planning of urban rail transit, to achieve predictable costs, affordable financing and support sustainable operations (Figure 5). "1 Chain" refers to the whole life-cycle value chain from preliminary works to continuing operations, as well as full-cycle management and promotion of integration. "2 Loops" is based on the principle of duration and risk matching. First, during the investment and construction period, comprehensive transit-oriented design (TOD) is implemented in metro stations and along rail lines. Revenue from immediate property sales is used to support the metro construction, and sufficient and stable funds are secured to form a closed value loop of investment businesses. Second, during the period of continuous operation, operating income from holding businesses is employed to fund metro operations, and a closed value loop of operational businesses are formed by taking advantage of the passenger flow and the presence of high-quality business that increase the value of property along metro stations.

Figure 5. Shenzhen Metro "1 Chain + 2 Loops"



Source: Shenzhen Metro Group Co., Ltd.

Under this model, the local government formulates relevant policies, leads the full life-cycle financial evaluation of projects, prepares plans regarding investment, financing and resources, implements financial support policies and ensures sufficient fiscal support. It also allocates land resources to match rail transit financing. Local government provides support and help rail transit enterprises to make active use of policy-based financial instruments to raise low-cost funds. As of now, over RMB 40 billion local government special bonds and RMB 10 billion policy-based financial instruments have been issued.

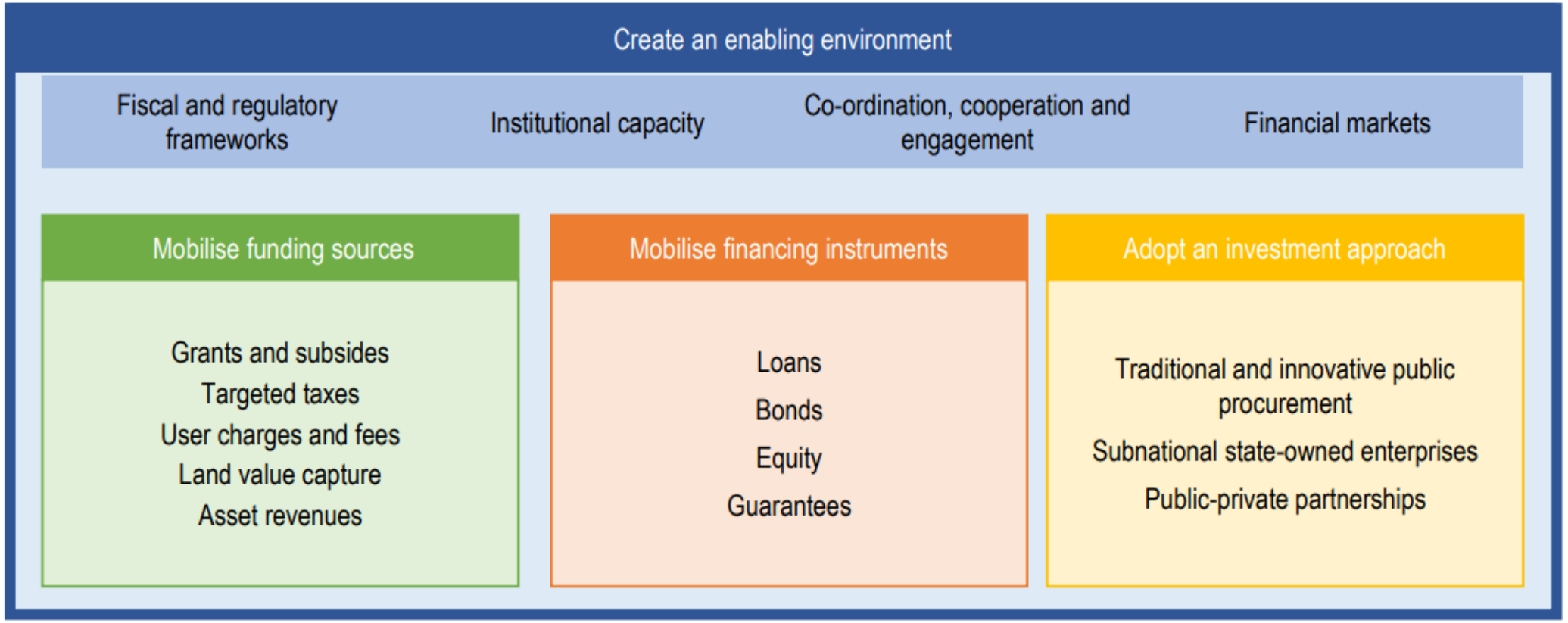
Along with providing high-quality public services, rail transit enterprises are required to have the capability of integrated construction and resource management, cost management and control, operational excellence and financing. The Shenzhen Metro Group Co., Ltd. plans the whole life-cycle capital needs, diversifies and expands financing channels, optimises debt structure and strictly controls debt risks. Over the past three years (2019-2021), Shenzhen Metro Group Co., Ltd. has utilised various financing methods and its cumulative financing has exceeded RMB 150 billion. At the same time, it has actively mobilised RMB 25.6 billion from the private sector through PPP or other models.

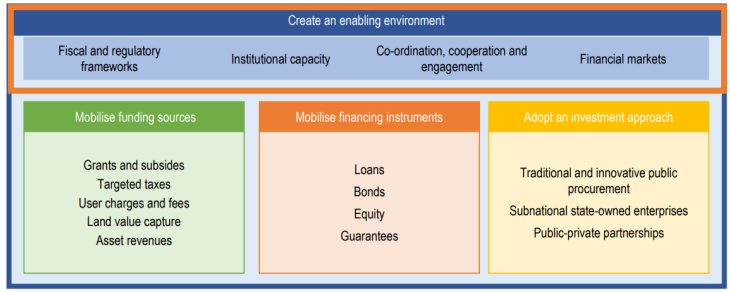
Impact: R+P provides a solution for densely populated and transit-dependent cities to support metro construction and operations. In the case of the Shenzhen Metro Group Co., Ltd., it has managed to generate sufficient revenue to support the expansion and operations of metro infrastructure projects. Total operational income in 2021 reached RMB 16 billion and 235 kilometres of new metro lines and sections are under construction. In 2021, the metro carried more than 60% of local traffic in Shenzhen City. Since 2019, the major financial indicators of Shenzhen Metro Group Co., Ltd. such as asset scale, revenue, and profit have ranked among top three in the industry, among which the profit indicator has consistently ranked first in the industry for many years, and asset-liability ratio (below 50%) remains at a low level among industry peers, forming a sound operation mechanism with self-support function.

Sources:

Shenzhen Metro Group Co., Ltd. (2022), 2021 Annual report (Chinese), 深圳市地铁集团有限公司 2021 年年度报告, https://www.szmc.net/SMARTC/upload/file/20220705/1656985920567056072.pdf

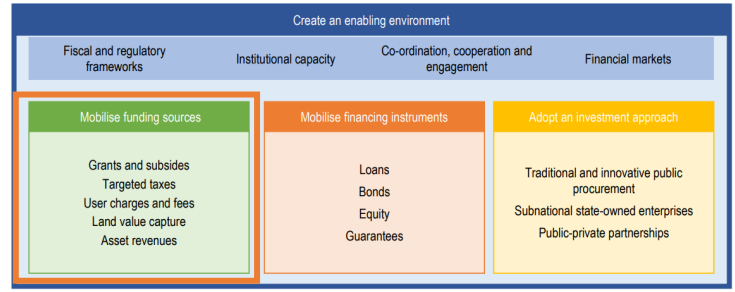
Toolkit highlights





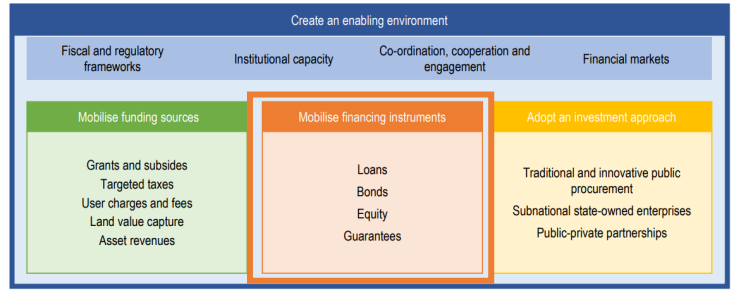
Enabling environment for subnational infrastructure investment

FISCAL AND REGULATORY FRAMEWORKS	INSTITUTIONAL CAPACITY	CO-ORDINATION, COOPERATION AND STAKEHOLDER ENGAGEMENT	ACCESS TO FINANCIAL MARKETS
Well-designed fiscal and regulatory frameworks can support infrastructure investment in areas where subnational governments have responsibility. This involves creating fiscal space for subnational investment while managing risks relating to subnational deficits and debt, and facilitative regulatory provisions (e.g., for PPPs, land use, property rights, procurement, etc.)	Institutional capacity of subnational governments, including human resources, skills, relevant policies, processes, and systems required for planning, prioritising investments, project designing and implementation, financial structuring, delivery of public services, as well as monitoring and evaluation of investment outcomes.	Co-ordination and cooperation with government and non-government actors at all levels and across all sectors, including businesses, civil society organisations, citizens, and sectors to ensure that there are no duplications but complementarities, and avenues for effective partnerships.	Identification and access to various external financing sources, including private businesses, and domestic and international financial markets besides public finance for subnational government infrastructure investments. Co-ordination (largely to exchange information) and partnerships between subnational governments and financing institutions are key.
Featured Tools			
Inter-governmental fiscal frameworks Budget balance rules Debt rules Internal and external audits Fiscal risk assessment Monitoring and early warning systems Independent fiscal institutions	Capacity building programmes Technical assistance facilities Project preparation and monitoring platforms PPP units	City and regional deals/contracts Regional and local development strategies Inter-governmental investment co-ordination platforms Inter-municipal cooperation arrangements Stakeholder engagement	Credit assessments Subnational pooled financing mechanisms Trust funds National Infrastructure banks
Case Studies			
1. Financial Discipline Law for Federal Entities and Municipalities (Mexico) 2. Infrastructure Funding and Financing Act, 2020 (New Zealand)	3. Preparation and Management Software: SOURCE (International) 4. The City Creditworthiness Initiative (International)	5. Regional Development Investment Agreement (Korea) 6. City Disaster Insurance Pool (The Philippines)	7. Minas Gerais Development Bank (Brazil) 8. Federal Fiduciary Fund for Regional Infrastructure (Argentina) 9. INCA Municipal Debt Fund (South Africa)



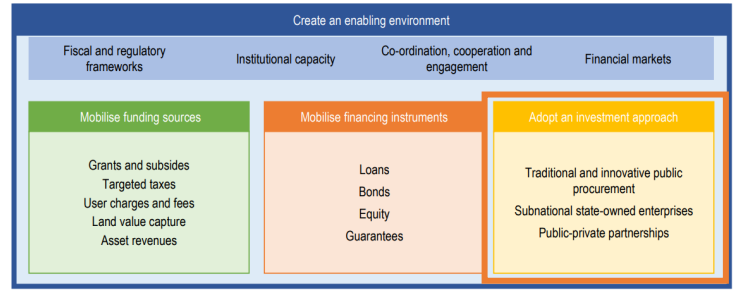
Potential funding sources for subnational governments

Grants and Subsidies	Taxation	User Charges and Fees	Asset Revenues	Land Value Capture
Transfers and subsidies from upper-level governments, international organisations and, in some cases, philanthropy that can cover current or capital expenditure (for infrastructure investment) by subnational governments. In general, the share of capital grants in subnational revenues is in general quite small on average, and volatile.	Taxes levied on income, commercial activities, wealth or property, production of goods or capital, which may be own-source ("autonomous") or shared with other levels of governments (typically personal income tax, corporate income tax, and value-added tax).	Charges or fees to the users of public infrastructure or for public services provided (e.g. waste collection), which may be collected by a subnational government or operator.	Subnational governments can seek to adopt a portfolio management approach to effectively manage their assets in the long-term public interest. This includes increasing revenues and asset benefits or decreasing whole-of life costs.	Instruments that seek to capture some of the windfall gains from public policy interventions or infrastructure investments, which could then be used by subnational governments to pay for investments.
47% of total subnational government revenue in G20 countries	39% of total subnational government revenue in G20 countries	10% of total subnational government revenue in G20 countries	*Not applicable*	*Included in other categories*
Featured tools				
Regional development funds Viability gap funding Competitive grant programmes Matching grants Conditions on grants	Property taxes Tax increment financing Carbon taxes Tourism taxes Mobility/transport taxes	Utility charges Parking fees and urban congestion charges	Public property or land leasing Asset recycling	Developer obligations Infrastructure levies Charges for development rights Land readjustment Strategic land management Transferable development rights
Case Studies				
10. On-Street Residential Chargepoint Funding Scheme (United Kingdom) 11. Federal Agglomeration Programmes (Switzerland)	12. Versement Mobilité (France) 13. Climate Action Taxes in Boulder, Colorado (United States)	14. Pico y Placa Solidario Programme and On-Street Parking Charges in Bogotá (Colombia)	15. "Rail plus property" model of Shenzhen metro (People's Republic of China)	16. Use of Transferable Development Rights In Hyderabad (India)



Financing instruments (including for credit enhancement)

Loans	Bonds	Equity	Guarantees
Loans are the most accessible form of finance for subnational governments. Loans are provided by a public or private financial institution to support an investment project or large investment programme.	Bonds are debt that is securitised through an underwriter and is issued on domestic or international capital markets. In some countries, subnational governments can issue a variety of different types of bonds to finance investment.	Equity is capital-at-risk provided in return for an ownership share of an asset or entity with a potential financial upside. Equity may be invested in PPPs, partially-owned SOEs or private infrastructure companies.	Guarantees are not financing instrument in themselves, but provide credit enhancement or credit substitution to a debt instrument, such as a loan or a bond. These instruments can thus help to improve the creditworthiness of subnational government debt for investors
57% of subnational government debt across G20 countries (OECD/UCLG, 2019[19])	27% of subnational government debt across G20 countries (OECD/UCLG, 2019[19])	In 2019, 31.5% of finance for infrastructure investment in low and middle-income countries was equity investment (World Bank, 2019[70]).	
Featured tools			
Project loans Concessional loans Green loans	General obligation bonds (municipal bonds) Revenue bonds and project bonds Thematic bonds (e.g. green bonds)	Impact investing Equity in PPPs Blended finance	Performance guarantees Financial guarantees
Case Studies			
17. Low-cost loans to support local government infrastructure investment (Australia)	18. Vivaracqua Hydrobond in Veneto (Italy)	19. The International Municipal Investment Fund (International)	20. The Municipal Guarantee Board (Finland)



Public infrastructure approaches

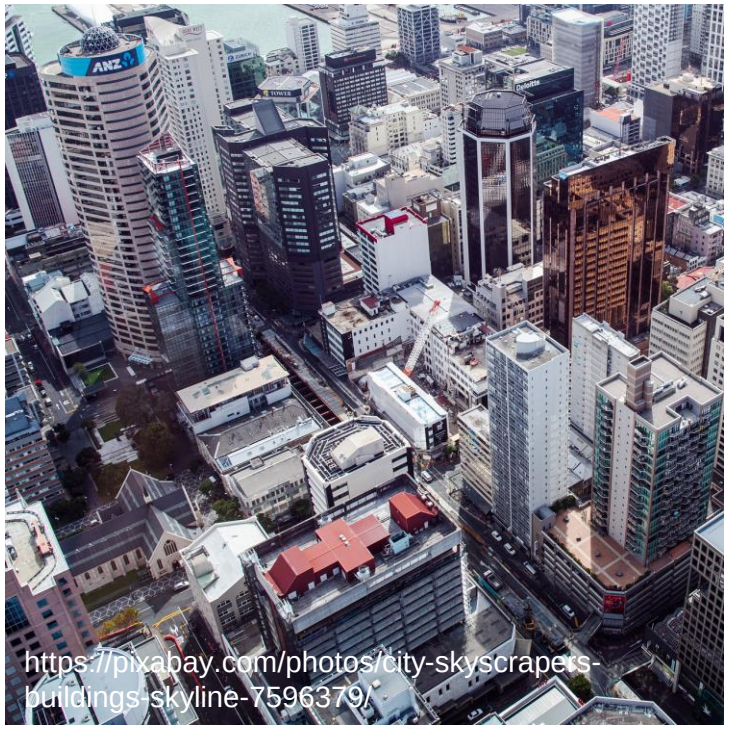
Traditional Public Procurement	Subnational State-Owned Enterprises	Subnational Public Private Partnerships
A subnational government body might directly procure infrastructure from the private sector through 'traditional public procurement', where the funding and financing for the infrastructure is provided from a subnational governments balance sheet. Innovations relating to traditional subnational government procurement include the use of green public procurement and socially responsible procurement.	SOEs owned by subnational governments – such as municipally owned corporations or local public companies – have a key role in many cities and regions to procure or directly deliver infrastructure investments and operate infrastructure. These enterprises may be established by a subnational government under relevant legislation to be partially or completely independent from other government institutions. They typically provide a specific function, such as to operate public transport networks or deliver an infrastructure investment.	Public-private partnerships (PPPs) can be used by subnational governments to support a specific infrastructure project and operations of infrastructure. The broad definition of a PPP used in this report includes contracts for public services where the private sector has significant. A PPP can be funded and financed through a wide range of instruments, including a mix of grants, user charges, loans and equity.
Featured tools		
Green public procurement Socially responsible public procurement	Development authority Transport authorities Local utility companies Infrastructure delivery authorities	User-pays PPP Government-pays PPP
Case studies		
21. Green procurement system in Valladolid (Spain)	22. Supporting Green Municipal energy utility: The German Stadtwerke (Germany)	23. Umbulan Water Supply System PPP project (Indonesia)

List of case-studies

No.	Category	Case
Enablers		
1.	Fiscal and regulatory frameworks	Ensuring Local Fiscal Discipline and Fiscal Sustainability: The Mexican Financial Discipline Law for Federal Entities and Municipalities
2.	Fiscal and regulatory frameworks	An Innovative Approach to Infrastructure Financing: The New Zealand Infrastructure Funding and Financing Act, 2020
3.	Institutional capacity	The multilateral online infrastructure project preparation and management software: SOURCE
4.	Institutional capacity	Achieve higher creditworthiness of cities: The City Creditworthiness Initiative
5.	Co-ordination, co-operation and stakeholder engagement	Inter-governmental contract to support bottom-up projects: The Korean Regional Development Investment Agreement
6.	Co-ordination, co-operation and stakeholder engagement	Collective risk pooling for city disaster risk reduction and management: The City Disaster Insurance Pool in the Philippines
7.	Access to financial markets	State assistance for municipal capital market finance: The Minas Gerais Development Bank in Brazil
8.	Access to financial markets	Facilitate regional government access to finance: The Federal Fiduciary Fund for Regional Infrastructure in Argentina
9.	Access to financial markets	Supporting mid-size municipalities to access to finance: The INCA Municipal Debt Fund in South Africa
Funding sources		
10.	Grants and subsidies	Support the green transition at the local level: The On-Street Residential Chargepoint Funding Scheme in the United Kingdom
11.	Grants and subsidies	Competitive Grant Financing of Urban Infrastructure in Switzerland: The Swiss Federal Agglomeration Programmes
12.	Taxes	Tax on companies to support public transport and mobility: The Versement Mobilité in France
13.	Taxes	Earmarked tax for climate-related projects: Climate Action Taxes in Boulder, Colorado, United States
14.	User charges and fees	Innovative Road/Congestion Pricing: Pico y Placa Solidario Programme and on-street parking charges in the City of Bogotá
15	Asset revenues	Harnessing development opportunities around urban rail infrastructure: The "rail plus property" model of Shenzhen metro in People's Republic of China
16.	Land value capture	Reducing land acquisition costs for infrastructure projects: The use of Transferable Development Rights in Hyderabad, India
Financing instruments		
17.	Loans	Low-cost loans to support local government infrastructure investment in Australian states
18.	Bonds	Pooling to attract institutional investors: Viveracqua hydrobond in Veneto, Italy
19.	Equity	Promoting equity financing: The International Municipal Investment Fund
20.	Guarantees	Facilitating municipal access to credit: The Municipal Guarantee Board in Finland
Investment approaches		
21.	Traditional and innovative public procurement	Promoting Social Efficient Procurement: Green procurement system in Valladolid, Spain
22.	Subnational State-owned enterprises	Municipal-owned energy utilities promoting renewable energy: "Stadtwerke" in Germany
23.	Subnational Public-private partnership	PPP with viability gap funding support from national government: The Umbulan Water Supply System Project in East Java, Indonesia

Case study 2:An Innovative Approach to Infrastructure Financing: The New Zealand Infrastructure Funding and Financing Act, 2020

Categories: Fiscal and regulatory frameworks



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Case study 2: An Innovative Approach to Infrastructure Financing: The New Zealand Infrastructure Funding and Financing Act, 2020

Category: Fiscal and regulatory frameworks

Background: New Zealand's cities are growing fast, with the population of urban areas such as Taurunga, Hamilton and Auckland growing by 32%, 24% and 19% respectively from 2006 to 2018. However, levels of housing supply are not matching new demand contributing to steep rises in housing prices. While there is often land available for development, local councils in high-growth areas can face borrowing constraints that may prevent them from providing underlying investments in water, roads, and community infrastructure that are essential to support housing developments. When faced with growth, councils typically must use their limited resources to pay for the upfront cost of new infrastructure, carrying the debt on their constrained balance sheets for years before having it repaid as new private housing developments start being built. There is also limited incentive for local councils to increase rates on current property owners to pay for these investments that will largely benefit future residents. As a result, infrastructure to support housing is often postponed.

Approach: In August 2020, New Zealand's government passed the Infrastructure Funding and Financing Act (IFF) 2020, establishing a new funding and financing model with a view to encourage private capital to support the provision of new infrastructure for housing and urban development. Through Special Purpose Vehicles (SPVs), local councils, Māori (comprised of entities representing different communities of indigenous peoples known also as Māori) and developers can collaborate to deliver infrastructure that is above the council's debt constraints or from charging high upfront costs to developers. SPVs raise finance for local infrastructure and then repay that finance through a levy charged to those who benefit from the new infrastructure, usually future homeowners. This infrastructure levy is paid annually for up to 50 years. Four different types of infrastructure can be funded by SPVs: three water infrastructure (i.e., storm water, drinking water and wastewater), transport infrastructure, community facilities, and environmental infrastructure for risk management and environmental restoration. The proposer (a local council, developer or any other person) must develop a levy proposal with information on the future levy and the SPV. This law sought to replicate a previous successful experience in Auckland in 2018. There, a SPV funded the construction of the Milldale community, raising NZD 50 million for housing infrastructure and creating 9 000 homes. Auckland Council collects an annual contribution from landowners amounting to NZD 650 for an apartment or NZD 1 000 for a house over the next 30 years.

Throughout the process, optional assistance is provided by Crown Infrastructure Partners (CIPs), a Crown-owned company that assesses the feasibility of projects and helps in developing levy proposals. SPVs obtain their powers to charge a levy only once they have been authorised on a case-by-case basis following a recommendation of the Minister responsible for the Act. This levy is based on the future cost of the project, which must be agreed upon by the CIPs and the local council which can present a challenge. Apart from its affordability and efficiency, the SPV is only considered when a responsible infrastructure authority is deemed to meet the necessary operational and maintenance costs of the infrastructure. Once authorised, the SPV remains in charge during the financing and construction phases of the project, and when completed, the infrastructure is transferred to the corresponding local authorities, who ensure its operation and maintenance.

Impact: In June 2021, the national government established the Infrastructure Acceleration Fund to encourage critical infrastructure projects. This Fund requires co-funding, which could come from the SPVs. However, no SPV has yet come to fruition. It is thus recommended that barriers to SPV deals be identified and removed, and that city councils be further incentivised to accommodating growth, for instance by sharing local Goods and Services Tax receipts.

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Case study 11: Competitive Grant Financing of Urban Infrastructure in Switzerland: The Swiss Federal Agglomeration Programmes

Category: Grants and subsidies

Case study 11: Competitive Grant Financing of Urban Infrastructure in Switzerland: The Swiss Federal Agglomeration Programmes

Category: Grants and subsidies

Background: Agglomeration areas in Switzerland have seen increased development that has driven up infrastructure and transport funding needs. Often funding for new transport infrastructure is needed in a jurisdiction where new developments are taking place. Simultaneously, many agglomerations have faced increasing demand to address congestion on local roads and to create and enhance recreational and green space. These rising infrastructure investment needs create a funding burden on local authorities and call for coherent transport and settlement planning within agglomerations.

Approach: The Swiss Federal Agglomeration Programmes, funded and administered through the Federal Road and Agglomeration Traffic Fund, provide competitive grants for public and individual transport infrastructure in agglomerations. The Federal Fund contributes 30% to 50% funding to the selected investment projects and the higher quality projects can receive a higher share of grants. Sustainability, cost-benefit analysis, and whether the projects help address local and regional traffic challenges, are some of the evaluation criteria.

The funding Programme is designed to incentivise coordination and cooperation among local authorities. As a condition to access the grants, local authorities need to plan and implement projects in a coordinated way to address local needs. They need to harmonise their transportation, urban development and land-use plans and develop their agglomeration programmes jointly across administrative units. Local authorities also need to prove that all future maintenance costs can be met.

Some local authorities developed model projects precisely to construct collaborations and create an agglomeration programme to access the Fund. In 2015, the canton of Uri and eight municipalities of the Lower Reuss Valley jointly developed an agglomeration plan for the Federal programme. The plan outlined the goals and strategies in the context of the Lower Reuss Valley's future development, in particular with respect to housing, landscape, and transportation.

Impact: Around 40 agglomerations throughout the country have participated in this Programme. Many local authorities are currently developing the fourth generation of their programmes: the Schaffhausen area focuses on promoting pedestrian and bicycle traffic and enhancing the settlements' street spaces. The municipal authorities of Brig-Glis, Visp and Naters devote to improving traffic safety, establishing transportation-system access and lowering traffic volume in residential areas. The cross-cantonal association of Agglo Obersee targets investments that harmonise settlement and transportation development. The cantons of Graubünden, Uri, and Valais, located in the alpine agglomeration, developed a programme that reflects their special needs for transport infrastructure in mountainous area.

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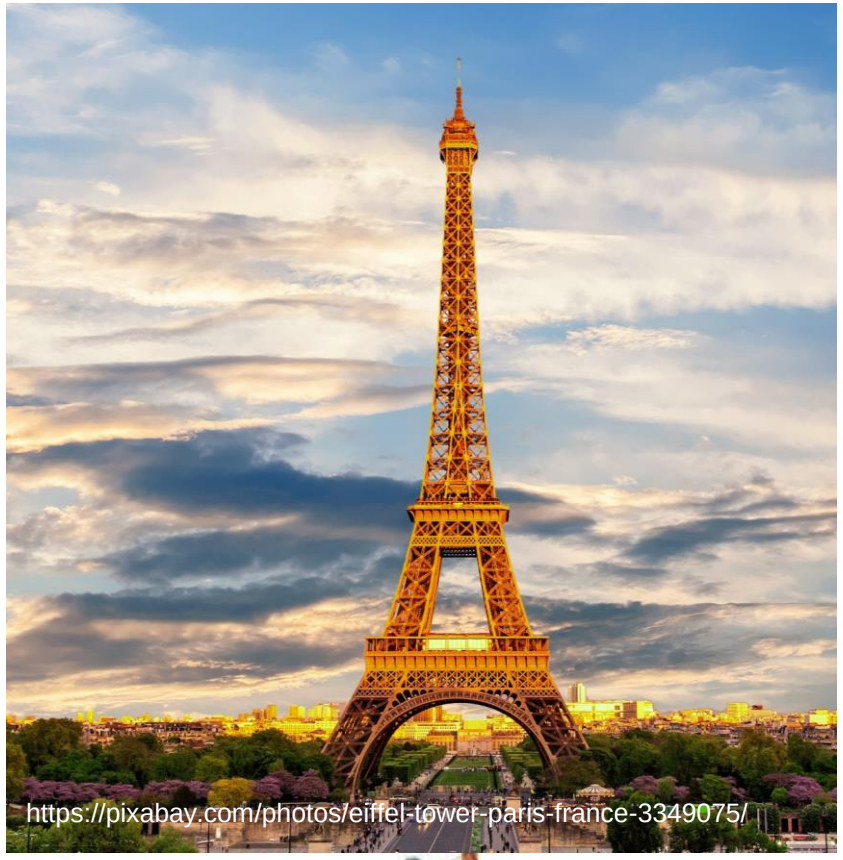
Case study 12: Tax on companies to support public transport and mobility: The Versement Mobilité in France

Category: Tax revenues



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Case study 12: Tax on companies to support public transport and mobility: The Versement Mobilité in France

Category: Tax revenues

Background: The just transition will require supporting a transition away from high-carbon emissions activities, while ensuring that alternative low-carbon solutions are equitably available to citizens. In France, the transportation sector accounts for 30% of the greenhouse gas emissions and more than 75% of employees in the country use cars to commute. This is particularly true in rural areas with a high dependency on cars, partly due to the limited public transport networks. Introducing policies and measures to develop public transport infrastructure in order to limit the dependency on private cars and reduce emissions in the transport sector is critical for the green transition, but it also needs to take into account affordability and equity.

Approach: To address the mobility challenges and make everyday transport more accessible, better adapted to the diversity of needs and cleaner, France passed a Mobility Orientation Law (*Loi d'orientation des mobilités*, LOM) in December 2019. The Law aims to reduce the dependence on individual cars, promote alternative mobility solutions, reduce greenhouse gas emissions and enhance transport infrastructure planning.

The Law replaced the transport payment tax (*versement transport*) with a mobility payment tax (*versement mobilité*). Similar to the previous transport payment tax, the mobility payment tax is levied on public and private employers with more than 11 employees, charged on the total gross salaries of all employees in a company or institution. This 11-employee threshold was chosen to exclude the smallest businesses deemed economically fragile. Such a tax underpins the idea that transport networks should not only be funded by users, but also by employers (enterprises and administrative services) who directly or indirectly benefit from the transport network, which also allows the employers to increase their recruiting opportunities and connections with employees and customers. Revenue from the mobility payment funds mobility services and part of the associated infrastructure (e.g. building new tram lines, replacing rolling stock, etc.), as well as actions contributing to the development of active or collective mobility (e.g., cycle paths, carpooling areas, carpooling platform, etc.).

Mobility payment tax revenue funds authorities who organise mobility (*Autorité Organisatrice de la Mobilité*, AOMs) in France to help them undertake investment and/or operation and maintenance of public transport services within their territorial scope. AOMs are entities responsible for organising at least one regular public transport and mobility services in territories (for example, a bus or metro line). In the majority of cases, it is the agglomeration communities, urban communities and metropolises that exercise the role of AOM in their territories. The Île-de-France region with Île-de-France Mobilités is the exception, exercising the role of regional transport organizing authority and also the role of AOM for urban transportation. AOMs can decide the tax rates in their territory and can adjust it twice a year, within the ceilings set by the Law. The level of tax rate usually takes into consideration the population and level of urbanisation. Outside Île-de-France, the mobility payment rate is between 0% and 2.5% (depending on the size of the territory comprised by an AOM). In Île-de-France, the rate is between 1.6% and 2.95%. The rates are reassessed twice a year: (i) on January 1st and (ii) on July 1st. In practice, this tax is collected by the Unions for the Collection of Social Security Contributions and Family Allowances (URSSAF) and the *Caisses de la Mutualité Sociale Agricole* (CMSA), on behalf of AOMs.

Success / Impact: This type of tax was first established in the Paris metropolitan region, financing the Île-de-France public transportation infrastructure. The tax was then gradually extended to smaller municipalities across the rest of the country to support increased transport investment. In 2017, EUR 4.3 billion euros was collected in regions other than Paris metropolitan region, which represented up to 47% to their public funding for transport (investment and operations). In 2020, over 250 AOMs in France had set up the mobility payment tax within their geographical boundaries. As of today, the mobility payment represents more than 60% of the Île-de-France Mobilités (the AOM for Paris metropolitan region) budget.

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Thank you