THE CITY ACADEMY ON FINANCE AND EQUITY (CAFE) WORKBOOK

An introduction to finance and equity and inclusion for cities

C40 CITIES FINANCE FACILITY

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Contents

Introduction 2-7

Chapter 1: The Climate Challenge 8-14

Chapter 2: Equity and Inclusion 15-30

Chapter 3: Climate Finance 31-81

Chapter 4: The Project Preparation Lifecycle 82-96

Resources 97

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The CFF is a UNFCCC award-winning project preparation facility that bridges the gap between cities and finance to support a green and just transition. The CFF focuses on three components: preparing climate infrastructure projects for financial readiness, linking these projects to finance, and replicating and upscaling such projects, proven approaches, and instruments. Now completing its third phase, the CFF has so far supported 35+ projects in cities in Asia, Africa and Latin America across a range of sectors including mass transit, cycling, adaptation (water and NBS), renewable energy, buildings and waste.

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Implementing agencies

Funding partners

Introduction

The CAFE workbook is a comprehensive learning resource for city officials developing sustainable and equitable infrastructure. Its content was first developed for the City Academy on Finance and Equity (CAFE) implemented by the CFF to its partner cities, and now is available to everyone.

It can be used as a stand-alone resource, and also forms part of the City Academy on Finance and Equity (CAFE) of the CFF.

The workbook has four chapters that contain the necessary knowledge and tools to plan sustainable and equitable infrastructure:

1. The climate challenge faced by cities
2. Equitable and inclusive best practice and processes
3. The climate finance framework, finance instruments, and decision making tools
4. Project preparation best practice and processes

Each chapter contains:

> Learning objectives

> Knowledge and information

> Case studies and examples

> Practical exercises

Case studies cover the sectors of energy and buildings, solid waste management, nature-based solutions, and transport. The concepts in the CAFE Workbook can also be applied to other sectors.

The CAFE workbook is designed to be used from start to finish, each chapter builds on the previous one. However, it is possible to use the chapters individually.

How to use the CAFE Workbook

To get the most out of this workbook, start at the beginning and work through each chapter carefully, making your own notes as you progress.

There will be questions to guide you, and quick tests will check your knowledge development.

The exercises in the workbook encourage you to apply the knowledge in each section to your city. You, as the workbook user, are invited to think about how you can use the information and tools to develop your project, in your context. Working through the exercises develops a suite of information that you can revisit or directly apply.

The workbook can be revisited at any time as a quick guide to the knowledge, processes and tools required for preparing sustainable and equitable infrastructure projects.

Glossary of key terms

Key terms used throughout the workbook are captured here. There is a lot of further information specific to equity, inclusion, finance, and green infrastructure. Each chapter of the workbook introduces relevant new terminology as it is needed.

Key terms

- **Emissions:** The carbon dioxide and other greenhouse gases (GHGs) released into the atmosphere that promote climate change.
- **Infrastructure:** Infrastructure is the basic physical systems of a city, region, or nation e.g. transportation systems, communication networks, buildings, sewage, water, and electricity.
- **Green infrastructure:** Infrastructure that is planned, designed, constructed, operated and decommissioned in a manner that ensures economic, financial, social, environmental (including climate resilience) and institutional sustainability over the entire infrastructure lifecycle.
- **Infrastructure financing:** Raising the upfront money to build and maintain an infrastructure project.
- **Debt:** Debt is money borrowed by one party from another. Debt is often used to make large purchases and/or investments that the borrower could not afford under normal circumstances.
- **Equity (finance):** Equity is the value of ownership in a business or project. Equity can be thought of as the amount of money that would be returned to shareholders in a company or project, if all of the assets were liquidated (i.e. turned into cash) and all debts were paid off.
- **Equality:** Each individual or group of people is given the same resources or opportunities.
- **Equity (Equity and inclusion):** Providing the exact resources to each group according to their own needs, to create an equal outcome.
- **Justice:** One step beyond equity. Fixing the systems in a way that leads to long-term, sustainable, equitable access for generations to come.
- **Inclusion:** the ability of people to accept the other and live in harmony accepting differences.
- **Inclusivity:** The practice of including relevant stakeholders and communities, particularly marginalised groups, in the policy-making and urban governance process, in order to ensure a fair policy process with equitable outcomes despite their different needs.
- **Intersectionality:** Recognising that identity categories overlap and the associated potential for discrimination.

Key abbreviations

> **E&I:** Equity and inclusion is the concept and practice to recognise and value differences among people, ensure fair opportunities for everyone and foster an environment where all feel welcomed and respected.

> **DFI:** Development financial institution, also known as a Development bank, is a financial institution that provides risk capital for economic development projects on a non-commercial basis.

> **PPP:** Public-private partnership is an arrangement between a public authority and a private partner designed to deliver a public infrastructure project and service under a long-term contract.

> **CAPEX:** Capital expenditure is the money needed to purchase, construct or upgrade assets.

> **OPEX:** Operating expenditure is the ongoing costs that an entity incurs through its normal operations.

> **PPF:** Project preparation facilities provide cities with support in preparing projects

CHAPTER 1:
THE CLIMATE CHALLENGE

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THE CHALLENGE

What will you learn?

- The challenges faced by cities
- The effects on the most vulnerable communities
- The opportunities for sustainable and equitable infrastructure

Why is this important?

Understanding the needs and challenges that your city faces will build the case for planning and financing equitable and inclusive infrastructure.

The global challenge

Cities are home to more than 50% of the world's population, increasing to 68% by 2050. They are a focal point for global infrastructure investment such as housing, water, energy, transport, waste management and the built environment. Cities drive the global economy, contributing 80% to global GDP.

Cities also account for up to 75% of global emissions. The Paris Agreement aims to limit warming up to 2°C above pre-industrial levels, and pursue efforts to limit to 1.5°C. Currently, global temperatures have increased by 1.1°C, and the world has experienced an increase in cyclones, floods, droughts, pandemics, and heat waves. Furthermore, these climate impacts disproportionately affect the most vulnerable people and communities who are less able to respond.

The city challenge

Cities have the ability to fight climate change, but face four key challenges:

The case for resilient equitable planning:

1. URBANISATION

Cities are growing and need to develop new infrastructure. The decisions about how this infrastructure is built, who it serves, and how it responds to climate change are being made now

New and upgraded infrastructure provides the opportunity to invest in sustainable, resilient and equitable infrastructure

2. CLIMATE CHANGE

Climate-related hazards such as extreme temperature changes, droughts, floods, cyclones and storms are becoming more intense and frequent, alongside long-term incremental shifts in weather or climate

As cities are often the first responders to disasters, resilient infrastructure can help to mitigate or adapt to the changing climate. We need to get infrastructure right to address this challenge

3. INEQUALITY

After extreme weather events, citizens from the most vulnerable communities are left without homes and jobs long after the rest of the economy has recovered. Conversely, improved services tend to be focused in high-income districts due to their cost, thus improving air quality and public health for the residents of these areas only

When all communities are able to access the benefits of a low-carbon transition, city and political leaders, who are trying to improve cities, gain support to act

4. GLOBAL SHOCKS

Cities' decisions on infrastructure are influenced by local and global factors, and are affected by shocks such as rapid political change, war, pandemics, adverse weather conditions, embargos, resource availability, and digital outages

Cities can shield their citizens from global shocks by developing equitable and inclusive infrastructure, as well as providing a platform for communities to respond

Addressing the four challenges of urbanisation, climate change, inequality, and global shocks follow the same objective: to give everyone everywhere a good quality of life, and access to resources and opportunities. Cities can be healthy resilient communities that honour the value of biodiversity and natural habitats.

Breaking carbon lock-in

The infrastructure installed now will continue operating for many decades. The decisions made today directly influence the nature of the future green economy.

Investing in high-emission infrastructure guarantees future emissions.

Investing in low-emission alternatives reduces emissions and helps cities to meet their mitigation and resilience targets.

Areas for investment to avoid future high emissions include:

> **Green construction and retrofits:** Create low-carbon built environments where people will love to live

> **Clean mobility:** Promote clean and shared transport for connected, accessible cities

> **Renewable energy:** Invest in renewable energy generation and electrification

> **Active transport:** Foster pedestrian and cycling schemes for healthy, active citizens

> **Nature-based solutions:** Deliver green spaces that benefit citizens and their cities

> **Waste and resources:** Support workers and create a circular economy

> **Research and development for clean technologies:** Foster a culture of green innovation for long-term benefits

When done sustainably and equitably, investments can yield economic growth, create and protect millions of jobs and deliver quick, durable and inclusive economic, health, social and environmental benefits for citizens, all whilst contributing to long-term urban resilience.

Barriers to change

Finance remains a critical barrier to climate action in cities. An additional USD $3.2 trillion in investment in urban infrastructure per year will be needed to meet the Paris Agreement and limit global warming to 1.5°C above pre-industrial levels. This is the urban finance gap. Critical changes are needed to prioritise, unlock and accelerate finance for climate action in cities.

BOTTLE NECK	OPPORTUNITY
Project-specific challenges, such as incomplete project preparation and unsuitable/underdeveloped business models	Prioritise the preparation and design of sustainable and inclusive projects, and make use of support organisations such as CFF
City-specific challenges, such as high indebtedness, limited resourcing and ineffective institutional frameworks	Choose the right financial instrument(s) for your city, and consider blended finance options and/or matching finance with bigger funding entities
Other context-specific issues, such as an underdeveloped domestic financing market or difficulties in collecting revenues	Partner with local or international stakeholders, and work together to (a) assist in building structures to attract finance and (b) develop and implement your project

Exercise

1. Key concepts from this section:

> The four city challenges
> Carbon lock in
> The urban finance gap
> Challenges and opportunities

Consider your key takeaways from this section (use the interactive box below if you wish to add notes)

2. Case study question

The challenge of climate change and climate shocks:

Evidence suggests that India's average temperature has risen by 0.7°C between 1901 and 2018 and will rise by 4.4°C by 2100. This has direct effects on public health, as mortality has been observed to increase by 11% when mean daily temperature crosses 40°C.

In 2010 the city of Ahmedabad in north-western Gujarat suffered a heatwave recording a temperature of 47°C, resulting in 800-1344 excess deaths.

What would you do to prevent further deaths? Use the box below to write your own answer before reading what happened and further suggested solutions.

Answer:

Ahmedabad implemented South Asia's first heat wave early warning system and preparedness plan offering an innovative approach to address rising temperatures. In the subsequent years, several cities have followed suit and prepared respective Heat Action Plans (HAP). More than 11 states encompassing 30 cities in India have already taken action for implementing HAPs as of 2018.

Further efforts are needed to follow-up with resilient green infrastructure that reduces the Urban Heat Island effect. Green roofs, natural cooling techniques, spray parks, and urban forests are examples of city infrastructure designed to ensure long term sustainability of the city environment.

Public accessibility to cooling, and identification of the most vulnerable populations in a city where interventions must be provided are key to ensuring equitable outcomes of any solution.

CHAPTER 2:
EQUITY AND INCLUSION

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EQUITY AND INCLUSION

What will you learn?

- What we mean by 'equity and inclusion' and why it's important
- The three pillars of equity and inclusion
- The impact of equity and inclusion in different sectors

Why is this important?

Integrating equity and inclusion considerations into climate infrastructure projects will make them more effective and impactful in the longer term, whilst addressing systemic inequalities in cities.

What do we mean by 'equity and inclusion'?

Climate change is unfair: It affects us all, but not all are equally affected.

The top 10% of income-earners are responsible for almost half of global greenhouse gas emissions, while the lower 50% of income earners are only responsible for 10% of emissions. Yet this bottom half is significantly more affected by climate change.

In 2018, 70 million people are estimated to have been displaced from their homes by climate change, and this figure could rise to over 140 million by 2050.

Building equitable and inclusive climate resilience and adaptive mitigation measures has become urgent.

Many cities, when planning and implementing infrastructure projects, will already consider 'social inclusion', 'social impact', or 'gender considerations'. Equity and inclusion incorporates all of these practices.

Equity and inclusion encourages a city to think about inequality through a number of different lenses, and how infrastructure projects are an opportunity to make cities more livable for everyone.

Three key concepts in equity and inclusion

1. The difference between equality, equity, and justice

2. The impact of infrastructure projects

Infrastructure projects have a significant impact in a city, but the effects are not always equal. The impact, both positive and negative must be considered for all communities, including marginalised communities such as (but not limited to):

- Women
- Low-income groups
- Informal settlement dwellers / workers
- Racial / ethnic / religious minorities
- Migrants
- Elderly, youth and children
- People with disabilities
- Outdoor / temporary workers

3. Communities aren't mutually exclusive

An individual is always a member of a number of different groups, and therefore could feel vulnerable on a number of different fronts. This is intersectionality. Intersectionality helps us think about how multiple identities combine and overlap, shaping people's ability to accommodate climate risks.

The value of equity and inclusion

Integrating equity and inclusion considerations into urban infrastructure projects is essential for success, and help to rectify the injustice of the disproportionate effects of climate change.

When equity and inclusion is not considered in infrastructure projects, cities risk public backlash which can slow down or stop their work. Here are three examples:

1

South Africa:

An ambitious renewable energy policy was blocked due to fear of loss of jobs

Paris, France:

Citizens feared the reduction of economic activity when pedestrianisation of some city districts was first proposed

2

3

San Antonio, USA:

Residents raised concerns over an environmental clean-up scheme funded by developers, because of fears that their neighbourhoods would become more expensive due to 'green gentrification'

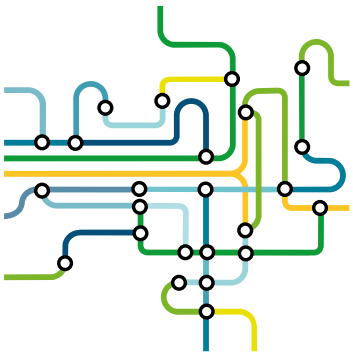
In all three examples, the issues could have been mitigated through community engagement and leadership, effective communication of benefits, retraining programmes, and renewable green job creation.

On the other hand, when climate action is inclusive and equitable, this can ensure wider benefits for all. Here are three examples:

1

Bogotá, Colombia:

The bus rapid transit (BRT) system created 1,900 to 2,900 new operations jobs across the system. By improving transit connectivity, access to other jobs also increased particularly for residents who were living further away from the city centre



Accra, Ghana:

The formalisation of 850 informal waste collectors has increased collection of waste from 28% to 48% in just two years, drastically reducing illegal waste dumps

2

3

Cape Town, South Africa:

Two pilot projects to retrofit ceilings in low-income communities provided temporary jobs for over 2000 workers from the community

Furthermore, equity and inclusion considerations in finance, including climate finance, can:

- Distribute the costs and benefits more equitably across social groups
- Build capacity and resilience across all sectors of the city
- Provide enabling conditions to increase a city's capacity to adapt
- Decrease social pressures through increased livelihoods and access to services

The three pillars of equity and inclusion

Cities' responses to climate change need to acknowledge and account for vulnerable communities, individuals and groups.

There are three pillars of inclusivity.

INCLUSIVITY OF PROCESS

Engagement of a wide range of communities and stakeholders, with a particular focus on increasing participation and involvement of populations adversely affected by inequality

CHALLENGES

- Lack of trust in the process
- Misleading perception about vulnerability to climate change
- Systematic exclusion of hard-to-reach groups

OPPORTUNITIES

- Increased visibility and future buy in
- Increased trust in the process
- Unlocked potential of marginalised and vulnerable communities to support in projects
- Reduced systemic barriers towards building a more equitable future

EXAMPLE

The COVID-19 pandemic made it hard for people with lack of connectivity or digital skills to be involved in decision-making processes. Social isolation rose with the people who were less confident using technology, poor, elderly, very young, or had learning difficulties, compared with those with easy online access

INCLUSIVITY OF PLANNING

Fair and equitable outcomes through thoughtful and intentional design of policies and actions that deliver inclusive projects and ensure that benefits of climate action are fairly distributed across city inhabitants

CHALLENGES

- Unintended consequences or inequities can emerge
- Oversight of key groups
- Long term consequences

OPPORTUNITIES

- Increased access to programmes and services for the majority of the population
- Reduced pre-existing urban inequities exacerbated by climate change
- Reduced unintended consequences of climate mitigation and adaptation efforts
- Increased trust in the government

EXAMPLE

A study in São Paulo identified that women represented only around 14% of cyclists. An equity analysis was carried out to understand the barriers faced by women. The results enabled equitable planning, including: public engagement workshops with impacted communities and improving public lighting

INCLUSIVITY OF IMPACT

Equitable distribution of the impacts of climate programmes, actions and policies together with indicators that can monitor and evaluate this impact

CHALLENGES

- Ensuring the equitable distribution of negative and positive impacts of climate action for all residents
- Unpopular with previously favoured groups

OPPORTUNITIES

- Reduced emissions
- Improved green job opportunities, health outcomes, and air quality
- Unlocked potential of all communities to the full range of benefits from climate action

EXAMPLE

People living in informal settlements are often the most affected by the lack of green infrastructure (green spaces and trees). Extreme weather events, such as urban heat, and high levels of socio-economic vulnerability increase risks for populations living in informal settlements. Where green spaces are provided in all areas, communities are more comfortable and productive

Inclusive community engagement

A key way cities can deliver equity and inclusion in their infrastructure projects is through inclusive community engagement. When time is taken to make community engagement truly inclusive, and allow the process to shape infrastructure projects, there are a number of benefits:

1. **Reduce and mitigate the risks** of projects being delayed or cancelled due to resistance or concerns by impacted communities. By engaging all relevant stakeholders from an early stage, concerns can be addressed in project design and potential resistance to the project can be resolved.
2. **Help prepare the project** with communities' needs and interests in mind and hence minimise negative impacts. Engaging directly with affected communities will ensure that city staff understand local needs and can design the project to fit their needs.
3. **Frame the project around shared values** to inform and drive behaviour change. If communities are engaged, achieving behavioural change might be more feasible.
4. **Develop trust and buy-in** from impacted stakeholders. Working with the community can present challenges for governments due to existing mistrust from local groups and lack of internal capacity. Encouraging the active involvement of the community within an engagement programme, through co-ownership and design practices, can build capacity, upskill members of the community and enable greater ownership to drive future climate action forward.

Inclusive community engagement creates stronger projects, because the diversity that comes from listening to a range of voices brings innovation and new solutions.

RESOURCE

The process of inclusive community engagement can be found in: **C40 Cities Inclusive community engagement playbook**

STANCE TOWARD COMMUNITY	0 IGNORE	1 INFORM	2 CONSULT	3 INVOLVE	4 COLLABORATE	5 DEFER TO
IMPACT	Marginalisation	Placation	Tokenisation	Voice	Delegated Power	Community Ownership
COMMUNITY	Deny access to decision-making processes	Provide the community with relevant information	Gather input from the community	Ensure community needs and assets are integrated into processes and inform planning	Ensure community capacity to play a leadership role in implementation decisions	Foster democratic participation and equity through community-driven decision-making
MESSAGE TO COMMUNITY	Your voice, needs and interests do not matter	We will keep you informed	We care about what you think	You are making us think (and therefore act) differently about the issue	Your leadership and expertise are critical to how we address the issue	It's time to unlock the power and capacity for transformative solutions

A city must avoid operating in the lower end of the spectrum, however it is also impractical to always operate at 5. A city should move around on the scale as appropriate during a project, based on its experiences. Cities should approach community engagement with an open mind and a willingness to build a project together, always striving to be on the higher end of the spectrum.

Exercise

Make a list of the key considerations that will help to move your city from community engagement towards community ownership when undertaking an infrastructure project. First, consider the communities affected by your project, and their needs. Second, consider how you can work with them towards comunity ownership. Third, consider the benefits they, and you, will gain if strong community ownership is achieved.

1. Communities affected (and their needs)

Some suggestions:

> Migrants
> Temporary workers
> People with disabilities
> Low-income groups
> Women
> The youth and elderly

2. Your considerations

Some suggestions:

> Always be transparent
> Partner with citizens to deliver change
> Successful engagement strategies are diverse and inclusive
> Engagement is a process, not an endpoint
> Build community capacity through engagement
> Deliver with integrity

3. Benefits

Some suggestions:

> Helps address vulnerability to climate and transition risks
> Builds individual and social capital
> Increases community capacity
> Builds trust and buy-in for more projects
> Supports changing behaviour
> Complements government resources

Equity and inclusion in different sectors

1. Nature-based solutions

Inequities in green and blue urban spaces:

- Communities with a higher proportion of immigrants and ethnic minorities tend to have less access to green spaces
- People with disabilities, women and children face accessibility issues that limit their ability to use or navigate public spaces
- Safety concerns and gender-based violence can deter women and girls from using urban forests and parks for outdoor recreation

When developing nature-based solution projects cities should ensure that:

- Design, governance and implementation processes are inclusive and transparent, ensuring meaningful multi-stakeholder participation (i.e. participatory workshops, community mapping, public consultations, etc.)
- The root causes of marginalisation, inequality and injustice are addressed
- Economic and non-economic losses are limited, and unfair redistribution of risks and costs is avoided
- Interventions in the most at-risk locations and communities are prioritised
- Adequate budget is assigned for inclusive community engagement processes
- There are E&I-related indicators in monitoring and evaluation strategies
- The social impact of the project is measured

2. Energy and buildings

Inequities in infrastructure projects in the energy and buildings sector:

- Energy consumption is essential for human wellbeing, but there is enormous inequality in energy use worldwide.
- More than 800 million people still lack access to electricity
- Energy and fuel poverty are issues of access and affordability
- High energy costs compound the issues of poverty in a household
- The cost impacts of public clean energy incentive schemes may disproportionately burden poorer taxpayers
- Clean energy access is critical for women's health, education and productive activities and is strongly related to reducing poverty and inequality for women

When developing renewable energy and retrofit projects cities should ensure that:

- Low-income communities are not excluded due to potentially high upfront cost of installation and maintenance
- Peripheral areas are considered for job generation even if investors fear lower rates of return from certain areas
- NGOs, charities, women's groups or cooperatives are engaged, as women may be informally or legally barred from owning or earning profit from operating the technology
- Plans are developed for inclusion of informal settlements that lack the physical infrastructure needed for distributed renewable energy systems
- Budgets include the assessment of all areas and communities, including any added cost of working in less resilient communities where more infrastructure maybe required

3. Solid waste management

Inequities in solid waste management:

- A high dependence on the informal sector
- Deprivation of informal waste pickers, who work in dangerous conditions, and who may be children, elderly people, or have other vulnerabilities
- Unequal service provision of municipal waste services
- Increased charges due to the formalisation of the sector can be unaffordable to poorer communities

When developing solid waste management projects cities should ensure that:

- The opportunity is taken to include vulnerable and marginalised communities
- An intersectional lens is applied to community engagement activities. Informal waste workers might be vulnerable not just because of their informal work status, but because they have limited education, lack access to healthcare, live in informal housing, or face discrimination

> CASE STUDY: ACCRA

Informal waste workers have been active in Accra for decades, in all stages of the value chain.

Informal workers include a large number of migrants from other parts of the country and West Africa. Initial challenges for the city of Accra included the disposal of waste in illegal open dumps, criminalisation of informal activities, unsafe working conditions, and mutual mistrust between the city and informal workers.

Integration would increase waste collection coverage, reduce the open burning of waste, close illegal dumps, and help fulfil Accra's climate action plan.

Actions taken

- Registration of informal waste collectors commenced in August 2018
- 601 informal service providers (ISPs) were registered by end of 2019
- City engaged ISPs to identify needs and required interventions
- ISPs were granted access to formal waste management facilities such as a transfer station and treatment plants for the first time
- Capacity building programmes were organised for ISPs
- Office space was provided to ISPs by the City

What was the result?

An increase of waste collection coverage from 75% (2016) to 87% (2018). Waste collected from households increased from 382 tons (2016) to 720 tons (2019). Recycling rate increased from 5% (2016) to 18% (2019).

Exercise

1. Mini quiz:

Q1: What is the difference between equity and equality?

a) Equity recognises there are unequal starting points and barriers and thus different people need different solutions to access rights. Equality offers equal support from evenly distributed tools

b) Equality aims to treat everyone the same, giving everyone the same tools, while equity aims to address the specific needs of different groups to achieve fairness

c) All of the above

Q2: Which of the following is an example of inclusivity in climate action?

a) Designing climate policies without considering the needs of vulnerable communities

b) Prioritising climate initiatives exclusively in economically affluent areas

c) Engaging and involving marginalised communities in decision-making processes related to climate action

Q2: Intersectionality, in inclusive climate action, is which one of the following:

a) Identifying the shared interests of the different communities to be impacted.

b) Recognising the complex roots of interconnected identity categories and the associated potential for discrimination.

c) Understanding the intersection of impacts between two or more climate actions

Answers:
c, c, b

APPLY IT TO YOUR CITY!

2. CITY BOARD

Equity & Inclusion Recommendations

Develop a set of equity and inclusion recommendations for your city: Consider those that are easily achieved, achieved with effort, and achieved if there were no limits.

DONKEY The most easily achieved of a set of solutions and recommendations

HORSE Solutions and recommendations that can be achieved with sufficient support and political buy in

UNICORN Solutions and recommendations that could be implemented if there were no limits

Further develop one selected action, a HORSE or UNICORN idea

SELECTED IDEA	PARTNERS	ACTIVITIES

CHAPTER 3:
CLIMATE FINANCE

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CLIMATE FINANCE

What will you learn?

- The climate finance framework
- The actors and instruments for municipal, international / public, and private finance
- The advantages and disadvantages of different finance instruments
- The E&I considerations when choosing finance sources and instruments

Why is this important?

A strong knowledge of different finance options allows you to make more informed decisions about which instrument(s) is / are best suited to your project.

The climate finance framework

The framework is made up of source, actor, and financial instrument. The following sections are categorised first by source, and then the different actors and financial instruments for each source.

> Source

Where the finance originates - in terms of municipal, public / international or private sector finance.

> Actor

The entities, individuals or parties that are of relevance to the specific type of financing option. Some examples are national governments, commercial banks or even project preparation facilities like the CFF.

> Financial instrument

Contracts between individuals or parties which hold monetary value. These monetary contracts can be created, modified, transferred, trade and settled. Some examples of financial instruments include grants, loans, bonds and guarantees.

Over the next three sections, think about how the different sources, actors and instruments might come together. Take into consideration how they may be used in different sectors and their impact on equity and inclusion.

INCREASING LEVEL OF MUNICIPAL AUTONOMY

Easier to access → Harder to access

The levels of increasing municipal autonomy at the start of each section shows the level of access to the actors and instruments depending on a city's enabling conditions and the needs of the project. It is explained in more detail in the financing ladder at the end of this chapter.

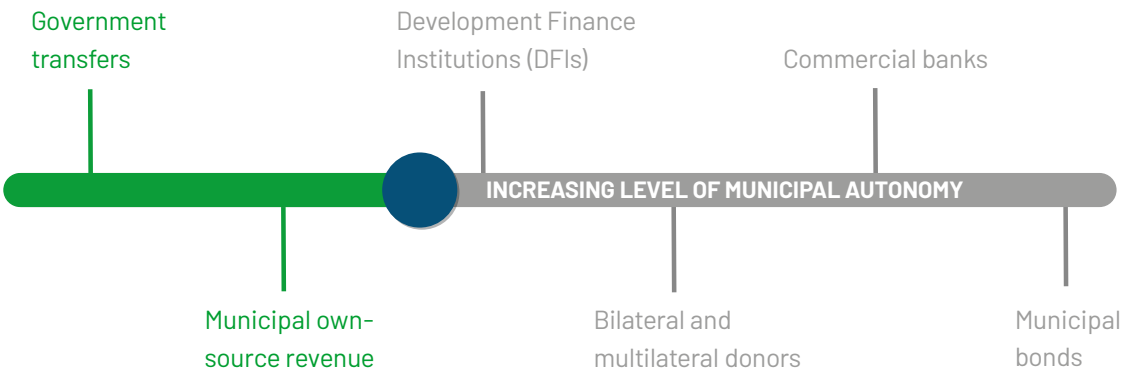
MUNICIPAL REVENUE

Municipal revenue refers to the money that cities have at their disposal to invest in public goods and services.

Municipal revenue is primarily comprised of government transfers (money distributed from other levels of government, e.g, national, state, provincial, metropolitan) and own-source revenues (taxes, fees, etc., collected locally and managed locally).

Municipal revenue is the simplest source of climate finance to access, as it comes from a city's own municipal finances. It's what is in the budget.

Of course, this financing may be ring-fenced or it may be extremely limited. As these resources are limited there is a high opportunity cost (the cost of doing something instead of something else) in deciding to prioritise one project over another for the use of this source of finance.



OVERVIEW OF MUNICIPAL REVENUE FINANCE

SOURCE	Municipal Revenue
ACTORS	> Municipal governments > National governments > Specialised agencies

FINANCIAL INSTRUMENTS	FINANCE AMOUNT	TYPE OF EXPENDITURE*
> Governmental transfers	> Small to medium	> CAPEX
> Taxes	> Small to medium	> CAPEX / OPEX
> User fees	> Small	> OPEX
> Development levies	> Medium	> CAPEX / OPEX
> Conservation easements	> NA	> NA
> Tax incentives	> NA	> NA

* CAPEX for design and construction, OPEX for ongoing maintenance

Actors

> Municipal governments

Municipal government (also referred to as the city, city administration or city government) is the main actor responsible for generating municipal revenues through the collection of taxes, land sales, development charges, etc.

Municipal governments are also involved in planning, financing, delivering and maintaining sustainable and equitable infrastructure. It is often in partnership with other actors such as private companies, institutional investors and development finance institutions.

> National governments

National governments (also known as federal governments in some contexts) are the governments of the country in which a city is located. They primarily support cities by providing intergovernmental transfers (in the form of discretionary or, more commonly, non-discretionary grants) or subsidies.

Transfers can be used to invest in sustainable and equitable infrastructure; subsidies can help make them competitive and maintain them. National governments may also loan money to cities, although they're more likely to do that through state-owned banks or credit facilities (e.g., Malaysia Development Bank BPMB, or the Development Bank of the Philippines).

> Specialist departments and agencies

At both national and municipal level, specialist departments and agencies may be involved in infrastructure financing, individually or together. This is particularly important because different entities will have their own creditworthiness and ability to access financing. The institutional arrangements will vary from city to city.

What specialist departments or agencies exist in your city that may be involved in financing infrastructure?

For example:

> Planning agencies, who develop infrastructure plans and project design.

> Environmental agencies, who conduct impact assessments and support development.

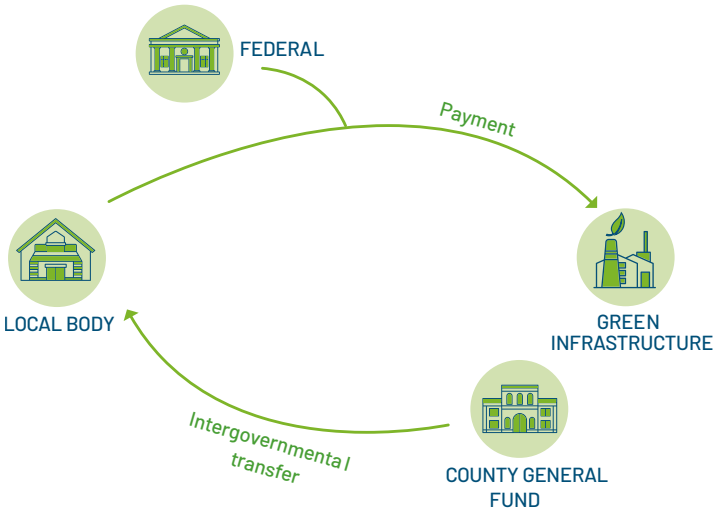
> Public sector utilities, who construct and maintain assets and core services like electricity.

> Public transport companies, who do the same as a utility but for public transport.

(Citizens are also of relevance as they approve lists of infrastructure projects in development plans, as well as overseeing and approving allocation of annual budgets to sectors/projects).

INSTRUMENT: Intergovernmental Transfers

Intergovernmental transfers are financial resources transferred from national or state-level governments to subnational levels of government (e.g., cities). Transfers are generally delivered as grants. Transfers can be either conditional (i.e. earmarked for a specific purpose) or unconditional (unearmarked).



> E&I in Transfers

✓ Lack of repayment means investments can focus on public goods for underserved locations / groups of people.

✓ Conditional transfers can be used to earmark finance for investments in the public good and to ensure distributional benefits for vulnerable communities.

✗ Conditionality could mean funds are not earmarked for equitable and sustainable investments.

> CASE STUDY

Balangoda, Sri Lanka

Background:

In 2009 the government of Sri Lanka launched a USD $40 million Solid Waste Management project named Pilisaru to finance composting facilities in municipalities across the country. The project provided fiscal transfers directly to local authorities for the construction of compost facility buildings, access roads, equipment and staff training.

What was the result?

Under Pilisaru, 115 composting facilities were constructed and upgraded. This including USD $81,000 in CAPEX to upgrade a facility in Balangoda which serves the municipality's 23,000 residents. The facility receives 20 metric tons of waste per day, of which 14 tons are treated via composting. The facility is self-sustaining, covering OPEX from sales of compost.

INSTRUMENT:
Taxes

Taxes are mandatory financial contributions to government, levied by governments at local, regional or national levels. Taxes can be applied as a percentage of a monetary exchange (e.g., when sales are made, or on specific products e.g., alcohol or fuel) or are applied based on the assessed value of an asset (e.g., property). Cities generally can only raise some type of taxes (i.e., not wealth or personal income, or carbon taxes) - mostly property taxes and sales taxes, or even traffic charging.

> E&I in Taxes

✓ Taxes provide strong opportunities to reduce inequality by raising capital from wealthy (e.g. property tax) and distributing benefits via investments in less wealthy neighbourhoods.

✗ Lack of tax collection means cities are not optimizing their sources of finance, the result of which is often disproportionately felt by those without access to basic services.

> CASE STUDY

Quezon City, The Philippines

Background:

Quezon City is part of the National Capital Region of Manila and has a population of 2.9 million. The City is implementing a project to instal solar PV panels on 50 of the city's 146 public schools. Quezon City opted to use revenue from the city's plastic bag tax to finance the USD $2.7 million CAPEX needed to instal the solar PV systems.

What was the result?

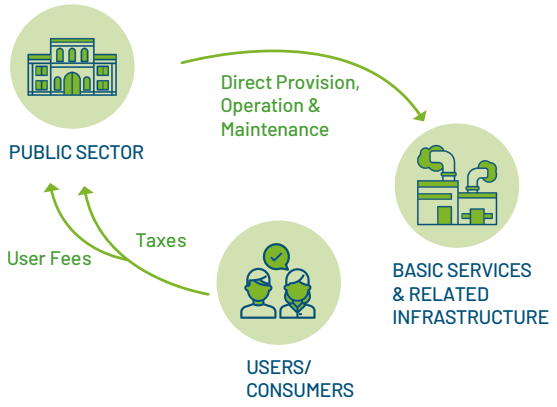
Between 2021 and 2050 Quezon City will reduce GHG emissions by 50,723 tCO2e. The city will save USD $750,000 annually. The project will serve as a pilot project to scale-up solar PV to 5,000 rooftops in Quezon City.

INSTRUMENT:
User Fees

User fees charge people a fee for using infrastructure or services. The fee can be on a per-use basis or a flat rate. User fees can raise money to pay back the capital for infrastructure investments or for operating expenditure. User fees can be directly or indirectly linked to investments.

> **Direct:** for example, cities can charge stormwater drainage fees to households based on the amount of impermeable surface area on their property, which directly contributes to urban flooding.

> **Indirect:** for example, cities can collect a percentage of household fees (e.g. water utility fees) and use it for operational costs of resilient infrastructure investments (e.g. park maintenance).



> E&I in User fees

✓ User fees can be adjusted based on income or neighborhood wealth and directed to support vulnerable areas, promoting wealth distribution.

✗ User fees should not be applied to public resources like parks, as this could limit access to those who can pay.

✓ Recreational facilities could offer subsidised programs to disadvantaged groups to enhance equity and inclusion.

> CASE STUDY

Pune, India

Background:

In 2008, Pune Municipal Corporation signed a public private partnership (PPP)with Solid Waste Collection and Handling (SWaCH), a self-owned cooperative of informal waste pickers made up of the urban poor. Under the PPP, SWaCH collects source-separated waste from city households, deposits it at designated collection points and charges households a user fee between $0.15 and $0.60 per month for their service. This is an example of a PPP business model that is self financing from the collection of user fees (though Pune provides SWaCH with a grant to support training and management costs).

What was the result?

SWaCH's segregated collection service covers 500,000 households and 60% of Pune's geographical area. In 2016, SWaCH diverted 50,000 tons of paper, plastic and glass from landfill to recycling facilities. Their service saved Pune USD $7.9 million per year.

INSTRUMENT:
Development Levies

Development levies generate revenue through land banking, development charges, and value capture, efficiently managing land use changes. Land is often a city's most valuable asset.

Land banking: Holding land to sell or lease later at a profit for infrastructure investment, sometimes through auctions.

Development charges: One-time fees on developers to fund new infrastructure, including connection fees (e.g., electricity) and impact fees (e.g., traffic, pollution).

Value capture: Charging landowners to capture increased land value due to new infrastructure, through one-time taxes or ongoing property tax increases.

> E&I in Development levies

✓ Cities can use funds from land sales, development charges, or value capture for equitable and sustainable investments in underserved communities.

✗ Cities should avoid selling land in vulnerable or less affluent areas to prevent worsening inequality, gentrification, and reduced resilience, as well as further brownfield or greyfield development.

✗ Value capture may concentrate investment in one area, increasing disparities if the funds are reinvested locally.

✗ Some development charges repay existing municipal costs in the new development, limiting the broader distribution of funds.

> CASE STUDY

Bonifacio City, The Philippines

Background:

Manila faces a range of climate shocks, especially high amounts of flooding due to extreme rainfall and tropical storms. Part of Manila, Bonifacio City is a 214-hectare land development designed in 1997 which sits on the site of a former military base. Bonifacio City was created after the sale of the former military base to private developers to create an integrated commercial, business and residential hub that could accommodate 250,000 residents.

What was the result?

As part of the urban development, Bonifacio City features an underground drainage system for stormwater. This structure is a five-story underground detention tank which collects water during typhoons and heavy rainfall periods. The tank can hold the equivalent of 8 Olympic-sized swimming pools worth of water, which is released into nearby rivers once it is safe to discharge the water. This urban flooding system was financed as part of the USD $800 million land sale of the former military base.

INSTRUMENT: Conservations Easements

An agreement between a private landowner and land trust or government agency, to limit the development and use of private land in order to protect its value.

In return for setting land aside for conservation, the landowner receives tax incentives such as paying lower income or property taxes.

Conservation easements are agreed in perpetuity.

> E&I in Conservation easements

✓ Conservation easements can be used to safeguard land that provides ecosystem services for a city's inhabitants, leading to positive socio-economic outcomes in terms of reduced vulnerability.

✗ Conservation easements do not necessarily provide public access to the land that has been set aside. They could still lead to exclusion of people from accessing nature.

> CASE STUDY

South Africa

Background:

South Africa's renosterveld is a rich shrubland ecosystem with extraordinary levels of biodiversity. Renosterveld ecosystems are classified as critically endangered, with only 5% of the landscape remaining due to clearing for industrial agriculture. Today, this critical ecosystem is fragmented, with the majority of renosterveld located in small patches on private farmland in valleys and hills that are too steep or rocky for cultivation. The Overberg Renosterveld Conservation Trust (ORCT) was established in 2012 to help protect the remaining fragments of renosterveld ecosystems. Given that these are mostly located on private lands, the ORCT has launched a conservation easement programme.

What was the result?

The first conservation easement was signed in 2017 for the protection of 200 hectares of land. As of 2022 nearly 20 have been signed, protecting roughly 6,000 hectares of renosterveld habitat in perpetuity.

INSTRUMENT:
Tax Incentives

Tax incentives are credits that a city offers to a recipient to reduces their tax obligations if they make equitable and sustainable investments.

Tax incentives can be used to encourage private companies to make equitable and sustainable investment choices (such as solar panels, or green spaces) on municipal buildings or land. By paying less taxes, companies make larger profits, encouraging investment.

Tax incentives can also be extended to households, commercial buildings and property developers to incentivize equitable and sustainable investment or upgrading in both new and existing building stock.

> E&I in Tax incentives

✓ Tax incentives may enable companies to develop or upgrade infrastructure in poorer areas where they may not see as much return on investment.

✗ Tax incentives can favour larger companies and inhibit local or entrepreneurial development as they cannot access the incentive.

> CASE STUDY

Salvador, Brazil

Background:

Salvador is a city in northeast Brazil with a population of nearly 4 million. Salvador has developed two tax incentive programs to encourage energy efficiency and renewable energy in the construction of new residential, commercial and mixed-use building building projects. The incentive reduces the price that the owner must pay on the main local tax IPTU (Urban Property and Land Tax).

What was the result?

For the energy efficiency program, known as IPTU Verde, owners receive a green certification of Bronze, Silver or Gold which entitles them respectively to a 5%, 7% and 10% reduction in payment of the IPTU.

ADVANTAGES	DISADVANTAGES
Municipal revenue is the primary and most accessible source of city finance	Unpredictable municipal revenue makes it a challenging source for capital expenditure
Municipal revenue effectively funds capital investments like infrastructure projects (e.g., parks, waste facilities, cycle lanes, renewable energy, coastal barriers)	Municipal revenue can be limited, or channeled to other priority areas
Cities can use municipal revenue (taxes, levies, and fees) to repay loans for infrastructure investments	Development levies can create equity issues, favoring wealthier areas over others
User fees from municipal services can fund ongoing maintenance and operations	Land banking and value capture may prioritise grey infrastructure, reducing green space and resilience, requiring a shift towards valuing equitable, resilient solutions
Conservation easements reserve land for green spaces, reducing the need for city CAPEX on new public areas	Conservation easements don't provide cities with capital for investments

Exercise

1. True or false:

	✓	✗
> **Statement 1:** Most intergovernmental transfers to cities are unconditional / not earmarked	☐	☐
> **Statement 2:** User fees are always set appropriately and never lead to overconsumption or lack of use	☐	☐
> **Statement 3:** Land-related finance tools aim to recoup the value of access to public infrastructure	☐	☐

2. Mini quiz:

Q1: What is a strength of intergovernmental transfers as a financial instrument?

- **a)** They are often easy to access and have no conditions on what the finance is spent on ☐
- **b)** This finance doesn't require any repayment of funds, as a long as the finance is spent in a prudent manner ☐
- **c)** In general there is lots of intergovernmental transfer finance available to cities ☐

Q2: Which one of the following is an example of a 'land use finance tool':

- **a)** Land banking ☐
- **b)** Development charges ☐
- **c)** Value capture ☐
- **d)** All of the above ☐
- **e)** None of the above ☐

Answers:
1: false, false, true
2: b, d

Write the names of actors in your city under the three different actor types

> Municipal governments
> National governments
> Specialised agencies

Consider which instruments you can access and may be suitable for the project(s) that you plan. Provide a short description for any instrument that you think is accessible and / or suitable and why.

> Governmental transfers
> Taxes
> User fees
> Development levies
> Conservation easements
> Tax incentives

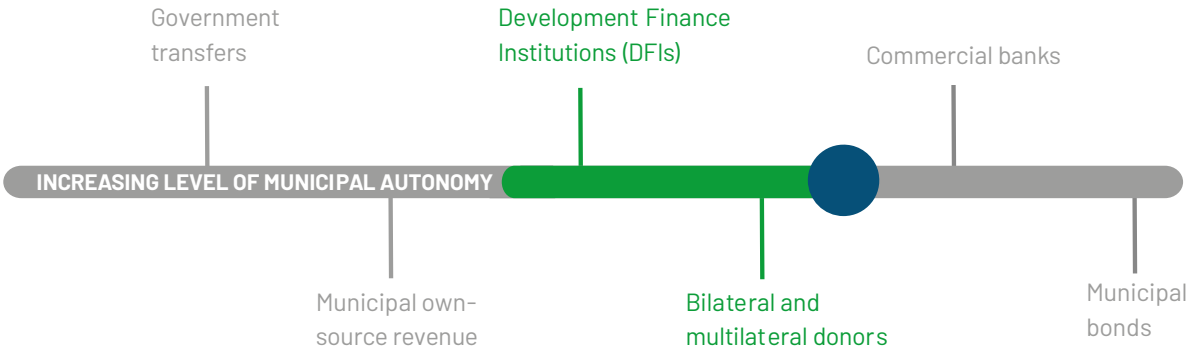
PUBLIC / INTERNATIONAL INSTRUMENTS

Public and / or international finance is finance provided by development finance institutions, (DFIs), governments and their agencies, and national and multilateral funds.

Often, the type of finance provided is concessional finance, i.e., finance at below market interest rates.

Public and / or international finance moves one further step along the financing journey, introducing sources of finance that are more complex and involve new actors.

At this stage, cities will begin to access finance from a wider variety of sources, including development finance institutions (DFIs) at the national or regional or international levels, and donors who provide (some) grant finance and more concessional finance.



OVERVIEW OF PUBLIC / INTERNATIONAL FINANCE

SOURCE	Public / international finance
ACTORS	> Development Finance Institutions (DFIs) > Bilateral donors > Climate funds > Non-governmental Organisations (NGOs)

FINANCIAL INSTRUMENTS	FINANCE AMOUNT	TYPE OF EXPENDITURE*
> Grants	> Small	> CAPEX / OPEX
> Concessional loans	> Medium to large	> CAPEX
> Guarantees	> Medium to large	> CAPEX
> Debt for nature swaps	> Medium to large	> CAPEX

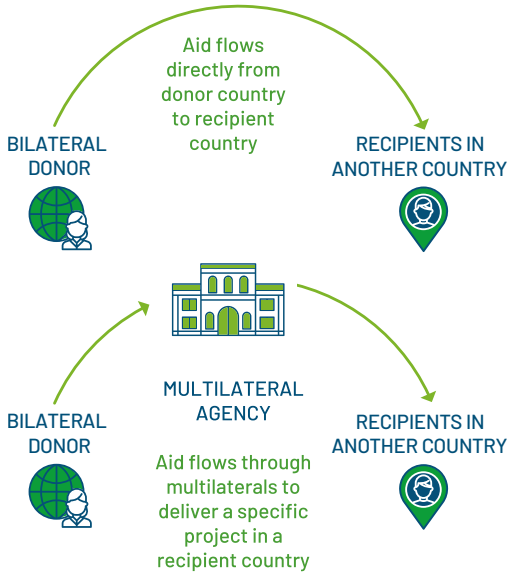
* CAPEX for design and construction, OPEX for ongoing maintenance

Actors

> Development finance institutions

DFIs are publicly owned financial institutions that provide capital for economic development projects on a non-commercial basis.

DFIs play an important 'bridging' role in finance, by serving as a bridge between grant-based public sector finance and high-interest private sector finance. DFI investment often serves to 'de-risk' projects in an effort to signal to the private sector that it is safe to invest in a particular country, sector, or technology.



> Bilateral donors

Bilateral donors include governments and their agencies in a country which provide finance to recipients in another country. Examples of bilateral donors include most Organization for Economic Cooperation and Development (OECD) countries.

Bilateral finance can be distributed as direct cash transfers in the form of grants, or through bilateral DFIs to disburse low-interest concessional loans.

> Climate funds

Climate funds are pools of money that are set aside to finance investments in climate action.

Many climate funds focus on supporting countries to access finance for development investments that promote climate change mitigation and / or adaptation to climate change.

> Technical agencies and NGOs

Technical agencies and NGOs can support cities through technical input into policy and strategy formation, climate risk assessments (CRA), feasibility studies, financial modelling, and advice on regulatory processes. They may facilitate engagement processes with communities and marginalised groups to ensure equity and inclusion.

Categories of DFI:

- **Multilateral DFIs:** DFIs that have multiple shareholder countries. They can be organised at both the global or the regional levels. Examples: World Bank, Asian Development Bank (ADB), African Development Bank (AfDB), Inter-American Development Bank (IDB), Caribbean Development Bank, the Islamic Development Bank, etc
- **Bilateral DFIs:** DFIs that are owned by a single country, which direct finance to projects in developing countries. Example: Germany's KfW Bankengruppe, France's Agence Française de Développement (AFD), British International Investment, Netherlands Development Finance Ministry (FMO)
- **National DFIs (and sub national DFIs):** DFIs that are owned by a single country. They direct finance domestically for development projects. Example: Brazil's Banco Nacional de Desenvolvimento Econômico e Social (BNDES), Development Bank of the Philippines, Bank Pembangunan Malaysia Berhad

List the DFI(s) that you know. What are your experiences with these different categories of DFI?

INSTRUMENT: Grants

Grants are non-repayable funds disbursed by governments or international financing institutions. Grants can be conditional or unconditional. Eligibility criteria for grants are defined by the donors, and conditions can be extensive.

> E&I in Grants

✓ Grants can be used to invest in infrastructure in specific locations or for specific groups who lack access and are more vulnerable. Lack of repayment means investments can focus on public goods for underserved locations / groups of people.

✗ Grants should not be relied on as the sole financial instrument to address equity and inclusion, since overall grant finance makes up a small portion of public finance. If relied on to deliver public goods for underserved groups, the trajectory of inequality and exclusion will continue.

> CASE STUDY

Battambang, Cambodia

Background:

Battambang is Cambodia's third largest city. Over 70% of the city's waste is organic material but there is no source segregation of organic fractions. With USD $350,000 in grant finance from the GEF and UNIDO, Battambang launched a pilot project to collect organic waste from markets and upgrade a local composting plant with machinery and equipment to increase the capacity of compost production using windrow technology.

What was the result?

The plant will produce 4 tons of compost per day, generating an income of USD $480 USD per day or USD $140,000 per year. The plant will also divert 3,600 tons of waste per year from the dumpsite, reducing CO2 emissions by 4,000 tons per year.

INSTRUMENT:
Concessional Loans

Concessional loans are loans offered to a borrower at interest rates below market value and with longer repayment periods. They are often made by DFIs to developing countries that would be unable to borrow at the market rate.

> E&I in Concessional loans

✓ Concessional finance can come with conditionality imposed by the funder that the money is earmarked to deliver specific E&I outcomes (e.g. focused on poverty, gender, vulnerable groups).

✗ In non-revenue generating infrastructure eg. sea wall defenses, cities will need to earmark municipal revenue for loan repayments. This could impact future spending on social programs leading to negative E&I outcomes.

> CASE STUDY

Beira, Mozambique

Background:

Beira is highly vulnerable to storm surges, coastal erosion, heavy rainfall and cyclones. The Chiveve river has become severely degraded, limiting its ability to mitigate urban flooding.

The World Bank and KfW provided USD $120 million in loans to implement urban drainage upgrades. Grey interventions include widening the river's tidal basin and a tidal outlet. Green NbS interventions provided a 17-hectare green urban park with rehabilitated mangroves and native flora.

What was the result?

The project (completed in 2021) has transformed the degraded Chiveve river into the largest green urban park in Africa. It combines recreational and public space, pedestrian routes, local market and small businesses. It is estimated to provide enhanced flood protection for 50k people.

INSTRUMENT: Guarantees

Guarantees are arrangements where a third-party guarantor agrees to fulfill the obligations of the borrower to the lender in the event of non-performance or paymentby the borrower. Guarantees are a risk mitigation instrument.

> E&I in Guarantees

✓ Guarantees can be used to secure finance in contexts where a borrower can otherwise not access finance. Altruistically, a government or DFI could act as guarantor for a project with high E&I benefits and cover the cost if a city could not repay the finance.

✓ Guarantees can also be used to enforce a 'positive' E&I conditionality that ensures the borrower integrates positive E&I consultations, planning, and outcomes.

> CASE STUDY

Brazil

Background:

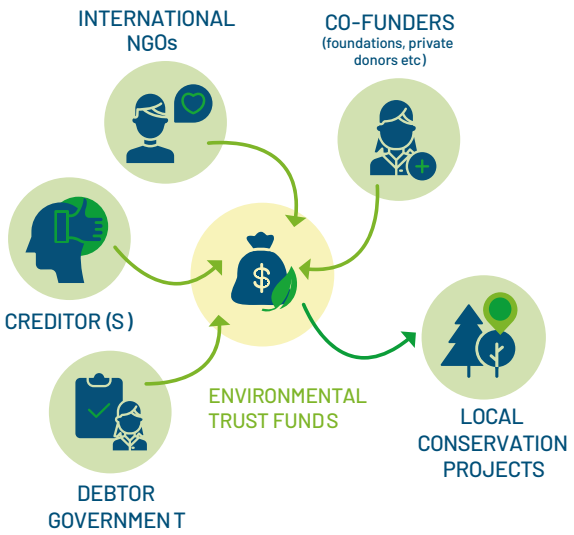
In 2021, Brazil's National Bank for Economic and Social Development (BNDES) created the Credit Guarantee Program for Energy Efficiency (FGEnergia). The first first initiative under FGEnergia was the creation of a R$ 40 million (USD $8 million) guarantee fund to support energy efficiency uptake by MSMEs.

What was the result?

The guarantees will cover 80% of the financing value of loans, up to R$3 million per company. Guarantees will range in length from 12 to 84 months. It is expected that the leverage ratio will be 8 times, meaning that the R$40 million will catalyse a total of R$ 330 million (USD $67 million) in energy efficiency investment.

INSTRUMENT:
Debt For Nature Swaps

Debt for nature swaps are a financial instrument where a highly indebted borrower (often a national government) makes an agreement with its creditors to restructure its debt at a lower interest rate or longer maturity, with the proceeds saved from the restructuring being allocated to conservation or green projects.



> E&I in Debt for nature swaps

✓ Debt relief can unlock government budgets, enabling them to allocate finance to public goods and services, for instance in infrastructure that provides resilience benefits (economic, physical, health), rather than debt repayment.

✗ However, there is the possibility that the conditionality for investments in nature prohibits use of natural assets (e.g. no-take zones in coastal fisheries) which can restrict livelihood opportunities of the poorest communities, and thereby exacerbate inequality.

> CASE STUDY

Seychelles

Background:

The Seychelles is home to precious coral reefs and endangered species and dependent on marine tourism and fishing. The effect of the 2008 global financial crisis was severe, with the government facing repayment challenges reaching more than 150% of GDP. In 2016, the Nature Conservancy (TNC), a US-based environmental group, initiated a "debt-for-nature swap" deal that restructured Seychelles' sovereign debt of US$21.6 million in exchange for its commitments to protecting the ocean.

The Seychelles Conservation and Climate Adaptation Trust (SeyCCAT) was established, which bought the debt from the creditor countries at a discount.

The government of Seychelles agreed to pay back loans to SeyCCAT at a lower interest rate, spend the savings on ocean conversation work, and protect 30% of its marine area.

What was the result?

By March 2020, Seychelles had made every debt-related payment on time and completed the protection of 32% of its waters.

ADVANTAGES	DISADVANTAGES
Grants do not require repayment, making them ideal for infrastructure projects without commercial returns or for achieving positive E&I outcomes	There is high demand, low volume, and often stringent access rules associated with public grants
Concessional loans offer low-interest, long-term finance for large capital projects like coastal defenses, solar farms, or rehabilitation of rivers and watersheds	Not all cities have borrowing authority, making them unable to access concessional loans from DFIs without support from external agencies or national governments
Guarantees ensure investors will be repaid, enabling cities with poor credit ratings to access finance	There is high demand for concessional loans from DFIs and long application processes (often multi-year)
Debt-for-nature swaps fund conservation and ecosystem rehabilitation, supporting nature-based solutions (NbS)	Concessional loans require cities to find alternative revenue sources to repay loans. Some adaptation and resilience assets are unlikely to generate revenue, so cities will need to target other sources of funding to repay them

Exercise

1. True or false:

✓ ✗

> **Statement 1:** There are three categories of DFI: Multilateral, bilateral, and national

> **Statement 2:** Concessional loans are usually at current or higher interest rates

> **Statement 3:** Grants are abundant and an easy way to upgrade and maintain infrastructure

2. Mini quiz:

Q1: What is the difference between multilateral and bilateral finance institutions? ✓

a) Multilaterals are owned by multiple governments, bilaterals are owned by one country.

b) Multilaterals can finance projects across all developing countries, bilaterals can only do so in one country.

c) Bilaterals are owned by multiple governments, multilaterals are owned by one country.

Q2: Which one of the following is an example of a 'land use finance tool':

a) A bank

b) A development finance institution

c) A multilateral institution

d) All of the above

Q3: What is a benefit of guarantees?

a) Guarantees ensure that a project will be completed

b) Guarantees can be used to secure finance in contexts where a borrower can otherwise not access finance

c) Guarantees are a mechanism to generate extra finance

d) Guarantees do not have any benefits

Answers:
1: True, false, false
2: a, d, b

Write the names of actors in your city under the four different actor types:

> Development Finance
> Institutions (DFIs)
> Bilateral donors
> Climate funds
> Non-government Organisations (NGOs)

Consider which instruments you can access and may be suitable for the project(s) that you plan. Provide a short description for any instrument that you think is accessible and / or suitable and why.

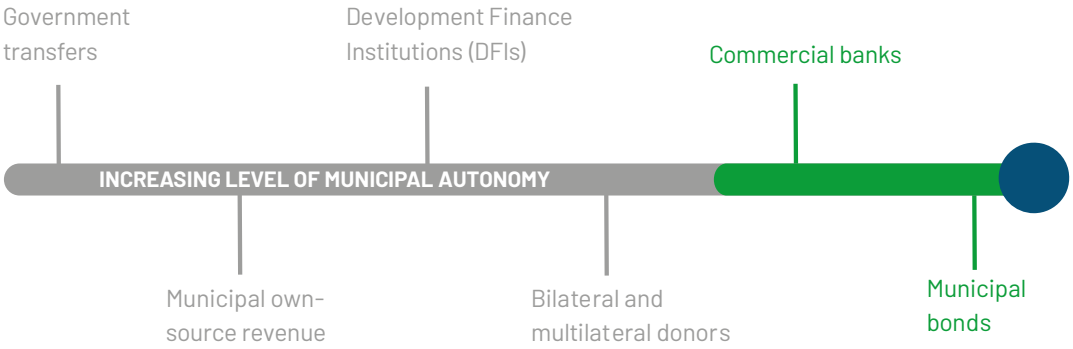
> Grants
> Concessional loans
> Guarantees
> Debt for nature swaps

PRIVATE SECTOR FINANCE

Private sector finance (also known as commercial) is finance provided by private sector investors, such as businesses, firms or individuals, and is intended to create profit for these investors.

While trillions of dollars are needed to build climate-resilient infrastructure, public finance only reaches hundreds of millions. Cities in later development stages can access private finance through commercial loans, equity, and bonds but must have legal borrowing authority and demonstrate creditworthiness. The most advanced cities can issue bonds for infrastructure investment.

The challenge is finding the right balance between the city's incentives (providing public goods) and the private sector's incentives (making money through profit and / or returns). Cities also need to have legal borrowing ability within national legal frameworks, as well as demonstrate creditworthiness.



OVERVIEW OF PRIVATE SECTOR FINANCE:

SOURCE	Private sector finance
ACTORS	> Banks > Institutional investors > Companies > Public private partnership (PPPs) > Households and individuals > Energy Services Company (ESCO)

FINANCIAL INSTRUMENTS	FINANCE AMOUNT	TYPE OF EXPENDITURE*
> Citizen and corporate finance	> Small	> CAPEX / OPEX
> Business concessions	> Small	> OPEX
> Commercial loans	> Medium to large	> CAPEX
> Municipal bonds	> Medium to large	> CAPEX
> Equity finance	> Medium to large	> CAPEX / OPEX
> Carbon offset credits	> Small	> OPEX
> PES	> Small	> OPEX
> Insurance	> Small to medium	> OPEX

* CAPEX for design and construction, OPEX for ongoing maintenance

Actors

> Banks

Banks are financial institutions that are licensed to receive deposits and make loans. They are important to the economy because they create capital, credit, and liquidity in the market.

Commercial banks are large sources of medium and long-term debt finance, provided to individuals, corporations and municipal governments as loans, credit lines, trade finance, commercial real estate and other instruments.

Retail banks offer services to the general public, including checking and savings accounts, credit cards, mortgages, foreign currency, insurance, and basic investment services.

Investment banks provide corporate clients with complex financial services. They serve an intermediary role between corporations and financial markets.

> Institutional investor

An institutional investor is a company or organisation that invests money on behalf of other people. The main institutional investors involved in sustainable infrastructure are pension funds, insurance companies, endowment funds, sovereign wealth funds, and commercial banks. Pension funds are the largest category of institutional investors.

Each fund has a slightly different investment mechanism. We do not cover them all here, but they can be easily looked up. Other institutional investors including mutual funds and hedge funds are not typically as involved in sustainable infrastructure.

> Companies

A company is a legal entity that sells goods or services to make a profit. The types of companies that are likely to be involved in green infrastructure at the city level include construction companies (who will design and build infrastructure), relevant retail companies (e.g., those who sell green products and services like solar panels and electric vehicles) and Special Purpose Vehicles: companies set up under a project finance structure to deliver an infrastructure project. These can be used to form public private partnerships.

Project finance is the financing of a long-term infrastructure project through cash flows from the project itself. This often occurs through a complex partnership agreement with many different types of actors under an SPV and sometimes the formation of a PPP.

Example:

The Government of India launched a Smart Cities Mission (SCM) to help 100 cities across the country make rapid advances through technology in achieving their sustainable development ambitions.

The implementation of this programme is being managed through Special Purpose Vehicles (SPVs) set up in each individual city. These act as a management tool to overcome the barriers and practical challenges of implementing large, highly complex programmes. SPVs are used to isolate each city and their investors from financial risk. If the project fails lenders can only recover their investment from liquidating the assets of the SPV.

> Public private partnerships

Public private partnerships (PPPs) as a broad concept are an option to procure and / or manage infrastructure (including systems, facilities, equipment and plants) and related services. They involve a partnership between the city (who form Special Purpose Vehicles (SPVs) and contractual agreement relating to public services), investors, contractors, and the public. PPPs are a heavily regulated type of collaboration structure which depends upon some form of project finance.

> Households and individuals

Households and individuals are also sources of private sector capital (savings, investments). For example, individuals may purchase bonds through their personal investments, or high net-worth individuals can be sources of funding for sustainable and equitable infrastructure through philanthropy.

> Energy Services Companies

Energy Services Companies (ESCO) are a company or an entity that delivers energy services or other energy efficiency improvements in an energy user's premises, and accepts some degree of financial risk in doing so.

APPLY IT TO YOUR CITY!

List the private sector actors who are accessible in your city:

INSTRUMENT:
Citizen And Corporate Finance

In some contexts, local residents and businesses can provide capital for the creation of public green space, or for the ongoing maintenance of existing public space in their neighbourhoods. This could include direct financial contributions, corporate sponsorship and in-kind contributions.

Corporate finance:

As part of their corporate and social responsibilities, businesses can invest in local initiatives and infrastructure, such as parks, schools, housing or other public areas. It is important for the city to have strong communication and ensure that these investments are aligned with the interest of all stakeholders.

Citizen finance:

Communities and households may invest in local infrastructure that will directly affect them, such as clean energy, green spaces and recycling. They may invest upfront capital or time. Engagement with communities is crucial to understand their needs and involve them throughout the project.

> E&I in Citizen & corporate finance

✓ Citizen-led initiatives can build a sense of community and belonging for residents and create public spaces that foster inclusion.

✗ Cities should not rely on this type of finance to fund the CAPEX or OPEX for green spaces. It is possible that this finance could come from wealthy neighbourhoods with the means to donate to public causes. Such a strategy could lead to green public space becoming further concentrated in affluent areas.

> CASE STUDY

São Paulo, Brazil

Background:

In São Paulo, an innovative citizen-led initiative is creating 'pocket forests' to promote urban biodiversity. The concept is spearheaded by biologist Ricardo Cardim, who is on a mission to promote urban reforestation technique by reintroducing native biodiversity on small plots of land in the city. Pocket parks provide shading and urban greenery to residents. The initiative is financed completely by private donations from individuals and businesses. A forest of 500 trees costs USD $12,500 for seedlings and soil. Planting is led by local volunteers.

What was the result?

Between 2013 and 2017, Ricardo and residents of local neighbourhoods planted 19 pocket forests in São Paulo on building roofs, bridges, public parks, private lots and street corridors.

INSTRUMENT:
Business Concessions

Nature-based solutions can be designed around the hybrid use of public space that includes green space open to the public and concessions for businesses to operate (e.g. food, drink and souvenir vendors).

Business concessions can generate revenue directly (if operated by the city) or indirectly (through rent, leasing or profit sharing).

> E&I in Business concessions

✓ Business concessions can provide job opportunities for different types of vendors to build businesses, including smaller, local vendors.

✗ Cities need to ensure that informal or small vendors are not excluded by high fees / rents or prohibitions on informal vendors.

✗ Business may privatise natural areas and exacerbate inequality due to restricted access to nature eg. Wildlife parks.

> CASE STUDY

South Africa

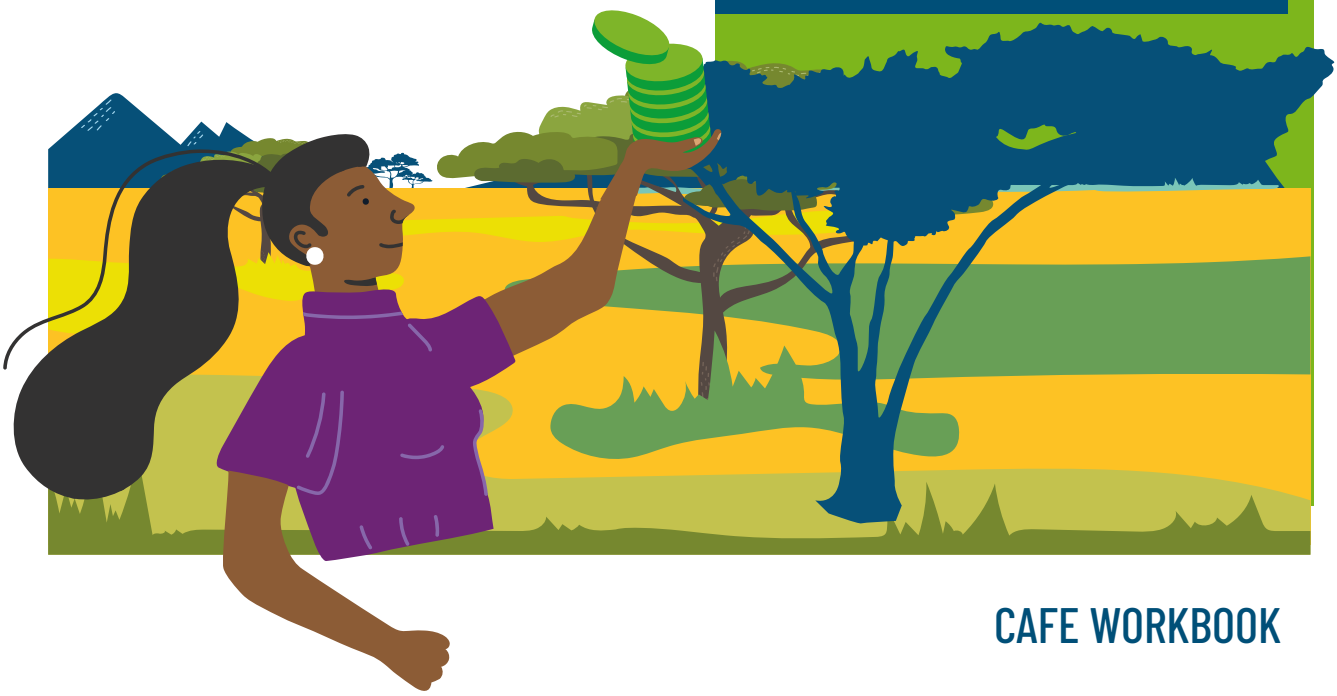
Background:

Over the past ten years, SANParks, which manages South Africa's 20 national parks, has rolled dozens of concessions. New deals are on offer relating to various lodges and camping facilities in the Kruger National Park, while concessions are on offer for tourism activities like a spa to be created in northern region of the park, guided quad biking trails, adventure motorcycle tours, and mountain biking activities.

There are 123 concessions in total. They include accommodation, retail, restaurants and multi-use facilities and activities, with additional partners sought for building and infrastructure projects.

What was the result?

The concessions bring a thriving tourism economy into the protected areas and allow further conservation of the natural resources and biodiversity.



INSTRUMENT:
Commercial Loans

Commercial banks provide (commercial) loans as investment in infrastructure. Cities can apply to commercial banks for a loan for their financing need. The bank would assess creditworthiness and offer loan terms.

Commercial loans can come from domestic or international banks. A syndicated loan is when a loan is extended by a group of financial institutions to a single borrower.

> E&I in Commercial loans

✕ Commercial loans are offered at high interest rates and short tenors. This could lead to a situation where cities need to prioritise loan repayment over investment in municipal services and infrastructure.

> CASE STUDY

Kanifing, The Gambia

Background:

Kanifing is the largest urban area in The Gambia with a population of half a million people. In 2019, the Kanifing Municipal Council introduced the first household waste collection service in The Gambia. The municipality did not have the upfront capital from municipal budgets to purchase waste collection trucks. Instead the city borrowed USD $2.5 million for three years to purchase 23 Foton compactor trucks used for household collection.

What was the result?

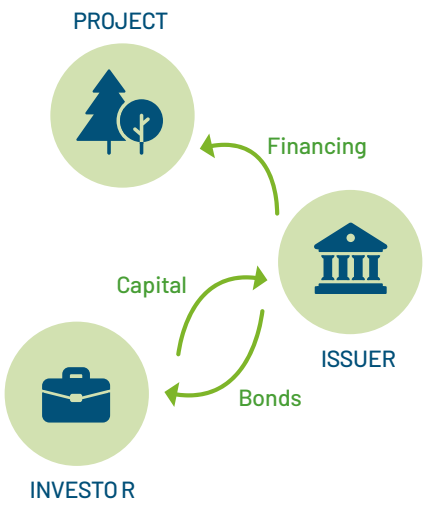
Kanifing now has systematic weekly household waste collection. The council estimates that 55-60% of residential households now benefit from door-to-door collection service. The commercial loan was successfully repaid in 2021.

INSTRUMENT: Municipal Bonds

A municipal bond is a unit of debt issued by a municipal government to raise capital. Municipal bonds are often used to raise capital for financing large scale investments such as infrastructure.

A green bond is a bond specifically earmarked to be used for climate and environmental projects. They are often verified by a third party, which certifies that the bond will fund projects with environmental benefits.

The issuer of a bond receives a cash purchase price at the time of issuing the bond, in exchange for a promise to repay the buyers of the buyers of the bond over time with an agreed interest rate.



> E&I in Municipal bonds

✓ Cities can use proceeds of municipal bonds to make critical investments in large-scale public goods (e.g. NbS that reduce flood exposure) which have positive distributional benefits to vulnerable groups.

✗ The longer-term need to repay finance to its creditors could lead to cities cutting funding to important municipal services, disproportionately benefiting marginalised groups.

> CASE STUDY

Mexico City, Mexico

Background:

Mexico City issued a municipal green bond in 2016 for USD $50 million, becoming the first city in Latin America to issue a green bond. The bond financed infrastructure in three major strategic priorities – sustainable transport, water management, and energy efficiency. Investment in energy efficiency focused on installation and maintenance of LED streetlights lighting in municipal buildings. The MXN 1 billion bond was issued with annual interest rate of 6.02% and a tenor of 5 years. The bond was oversubscribed by 2.5 times.

What was the result?

Investment in LED lights has led to a reduction of 3,823 tCO2e per year and energy savings of 7,352 MWh per year.

INSTRUMENT:
Equity Finance

Equity finance involves private companies financing infrastructure or services. It is often tied to specific infrastructure needs:

- In energy, private sector business models include energy savings (ESCO model) and energy generation (city as buyer model). Investments being provided by ESCOs or through the creation of PPPs between the city and a private company.

- In solid waste management (SWM), a private company may invest its own or borrowed capital in SWM infrastructure and services. In return, the PPP or franchisee collects user fees or payments from the municipality for services like collection and composting.

> E&I in Equity finance

✓ PPPs and franchising models can ensure that municipal budgets are not overburdened by expenditure, freeing up money for other social investments.

✗ Assets can be liquidated if the investment is not successful leaving unmanaged infrastructure in locations that disadvantage the local residents. These are often marginal land where large factories or power plants would have been placed.

> CASE STUDY

Lahore, Pakistan

Background:

In 2003, the City District Government of Lahore issued a tender for a private company to build-operate-and transfer a 1,000 metric ton per day compost facility. The city provided land and guaranteed the delivery of waste from households and vegetable markets.The Safi Group, a leading private industrial company in Pakistan, successfully won the contract and created an SPV (Lahore Compost Ltd.) to design, build and operate the facility.

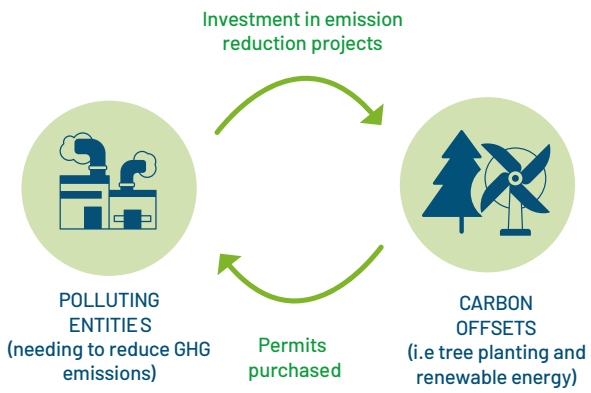
What was the result?

The total project CAPEX was USD $5.52 million. USD $2.65 million came as equity from the company, and USD $2.87 million was issued by the company as debt. Carbon credits were used to cover OPEX and compost sale revenue was used to make debt payments.

INSTRUMENT:
Carbon Offset Credits

Carbon offset credits are permits bought by polluters to reduce their GHG emissions. These credits are sold by issuers who have reduced emissions or increased carbon storage, certified by external entities. Companies, governments, or individuals purchase them to show they've removed a certain amount of carbon.

Cities investing in nature-based solutions (NbS), like greening public spaces, can issue carbon credits to generate revenue and help repay the cost of constructing those solutions.



> E&I in Carbon offset credits

✓ Accredited carbon credits can add value to otherwise unprofitable infrastructure benefiting vulnerable communities, like green spaces, or low impact, traditional housing.

✗ Investors prefer manufacturing or technical carbon capture due to its easy accountability. When natural assets are used, prioritising carbon credits can lead to monoculture planting, reducing resilience, biodiversity, and excluding groups with valuable traditional knowledge.

> CASE STUDY

Freetown, Sierra Leone

Background:

In Freetown, 12% of canopy cover was lost annually between 2011-2018 creating risks of landslides, flooding, and erosion. Freetown City Council responded with a plan to plant and grow 1 million trees by 2022. The #FreetowntheTreeTown tree-planting campaign uses digital technology to implement NbS. Community planters create geotagged IDs for each new tree. IDs are turned into "impact tokens," which can be bought, sold, and traded. While these are not officially 'carbon credits' the trading of impact tokens is modelled after carbon markets on a micro scale.

What was the result?

In 2020-21, 250,000 trees were planted on high slope areas where communities are susceptible to landslide risks. 2021-22 another 700,000 trees were planted during rainy seasons along roads, and key water sources. The project has created more than 550 short-term jobs, sold its first 5,000 tree "impact tokens," and generated enough revenue to plant and grow an additional 5,000 trees during the next phase.

INSTRUMENT: Payment For Ecosystem Services

Payment for ecosystem services (PES) is an arrangement where the beneficiaries of environmental services, for example watershed protection, forest conservation, and carbon sequestration, reward those whose lands provide these services with subsidies or market payments. PES encourages the maintenance of natural ecosystems to avoid damage for other users of the natural resources.

In urban contexts, beneficiaries of ecosystem services such as water utilities, households or businesses could pay for the ecosystem services provided by municipal NbS such as water access, stormwater management and flood protection.

> E&I in Payment for ecosystem services

✓ PES can provide disadvantaged households with a revenue stream for participation in nature stewardship which boosts their incomes and reduces poverty.

✗ Like user fees, PES payments need to be targeted to specific users who can afford them, so as to not burden poor or marginalised households and exacerbate inequality.

> CASE STUDY

Quito, Ecuador

Background:

In 2000, the municipality of Quito, its main water company and The Nature Conservancy created the Fund for the Protection of Water (FONAG), in response to degradation of the watershed that provides water for Quito. FONAG has an endowment of USD $12 million and an annual budget of USD $2 million, 90% of which comes from a 2% budget contribution from Quito's water company. FONAG uses its funds for conservation and restoration of ecosystems, and provides benefits for local communities and private landowners to incentivize ecosystem protection.

What was the result?

Since 2000, FONAG has protected and restored over 40,000 ha of Andean grasslands and forest and has supported over 400 local families with economic opportunities.

INSTRUMENT: Insurance

Insurance for is an emerging financing option to help protect natural or physical assets.

Cities can purchase insurance policies for the protection of specific ecosystems, NbS assets, parks, etc. As a finance instrument it does not support CAPEX, but can help with OPEX.

If a shock such as a flood, typhoon or drought damages the ecosystem they can receive financial payouts from the insurance company to help cover the financial costs of restoring the ecosystem and support adjacent communities who rely on the ecosystem for their livelihoods e.g. coastal fishing communities who may face reduced economic opportunities after a shock.

> E&I in Insurance

✓ Insurance can be used to compensate individuals, businesses and communities that rely on ecosystems which have been damaged by climate impacts, helping to reduce vulnerability.

✗ There are often delays in insurance payouts being delivered to beneficiaries. This could negatively impact the groups that rely on ecosystems for their livelihoods and lead to less faith in insurance as a protective finance mechanism.

> CASE STUDY

Quintana Roo Reef, Mexico

Background:

In 2018 the Nature Conservancy and Swiss Re launched the first ever insurance product to preserve a natural ecosystem, Mexico's Quintana Reef, and the communities that rely on it. The policy covers 100km of coastline, including several municipalities such as Cancún, Puerto Morelos and Playa del Carmen. Finance to purchase the insurance policy comes from hotels and municipalities adjacent to the reef, which receive payouts for reef restoration if wind speeds of 100-knots are recorded during severe storms.

What was the result?

In 2020 the policy was triggered by a Category 3 storm, leading to paymouts of USD $800,000 and enabling local teams to begin repair works on the reef.

ADVANTAGES	DISADVANTAGES
Smaller scale actions such as local composting or parks can access citizen and corporate finance	Finance from citizens and business are mostly applicable to smaller investments in local public spaces (e.g. parks), meaning this model only has limited applicability.
Carbon offset credits, PES and business concessions are three of the few instruments that cities can use to generate revenue from projects	Business concessions are only likely to generate small amounts of revenue for cities, and are unlikely to offset the higher capital investment costs.
Private finance, for instance municipal bonds or commercial loans, can be used to attract additional finance for upfront capital investment	Cities may lack the legal authority or adequate credit rating to borrow from the private sector, limiting potential investment.
ESCO or PPP models allow private companies to finance most capital investment, reducing the city's need to borrow	Equity finance requires relatively mature markets with existing ESCOs or service providers that can support cities to implement more complex equity financing energy business models. This market feature does not exist in all cities.
Private investors typically seek large-scale investments for their money, and are therefore able to fund large scale projects	Cities will need to identify alternative sources of finance to repay borrowed finance, especially where the return is through cost savings rather than revenue generation, which may strain budgets.
If cities invest in future savings or value generation through an ESCO or PPP model, these private companies could finance the majority of capital investment, reducing the need for cities to borrow	Carbon offset credits and PES can be complicated to estimate, measure and implement. Carbon offsets require verification from an external agency which can be time consuming and expensive.
	Insurance does not help build sustainable and equitable infrastructure projects. It only helps provide recovery payments after a shock occurs, which can be used for ecosystem restoration. Cities need to pay annual premiums, diverting funds from other priority investments.

Exercise

1. True or false:

✓ ✗

> **Statement 1:** Equity is used for financing specific projects (i.e., to gain ownership stake in a project or company).

> **Statement 2:** Project finance is the financing of a long-term project through cash flows from the project itself, which enable debt repayments/dividends

2. Mini quiz:

✓

Q1: Which one of these is an incentive for private sector financiers?

a) High returns - commensurate with risks and effort

b) Long-term, safe returns

c) Corporate social responsibility aligned investment

d) They are all incentives

Q2: What instrument can be used if a project entails significant risk or uncertainty that could overwhelm a private partner?

a) A loan provided by a group of financial institutions

b) A public private partnership (PPP)

c) Insurance

Q3: What does SPV stand for in equity financing?

a) Special Purpose Vehicle

b) Standard Presumptive Value

c) Standard Presumptive Value

d) Space Pursuit Videogame

Answers:
1: True, true
2: d, b, a

Write the names of actors in your city under the different actor types.

> Banks
> Institutional investors
> Companies
> Public private partnership (PPPs)
> Households and individuals
> Energy Services Company (ESCO)

Consider which instruments you can access and may be suitable for the project(s) that you plan. Provide a short description for any instrument that you think is accessible and / or suitable and why.

> Citizen and corporate finance
> Business concessions
> Commercial loans
> Municipal bonds
> Equity finance
> Carbon offset credits
> PES
> Insurance

Decision making within the finance framework

The finance framework, consisting of source, actor, and instrument, provides the outline of different types of finance.

However decisions must be made at the city and project level to choose the most appropriate source, actor and instrument.

There are three tools to support decision making:

> **E&I considerations**

> **The financing ladder**

> **Decision trees**

E&I for decision making within the finance framework

LINK

In chapter 2 of the workbook you discovered the three 'pillars' of equitable and inclusive climate action. Let's now look at how these concepts translate to financing climate investments.

> Inclusivity of process:

Engaging a wide range of stakeholders in finance decisions is vital. There are a range of different actors in the finance framework and some maybe better suited to equitable outcomes than others. Communities, especially vulnerable communities, should be engaged in the process to understand and accommodate community needs.

> Inclusivity of planning:

Project design includes choice of finance instruments both for capital and operating expenditures. Making choices that ensure equitable and inclusive outcomes need to be carefully planned into the design, execution and upkeep of the infrastructure. Communities can be included in the project preparation process and the allocating of funds to designing new projects

> Inclusivity of impact:

Factors such as public access, pricing, and distribution of infrastructure can deeply affect the inclusivity of impact. The ability to repay loans, or generate revenue must be balanced with the impact of the infrastructure and its accessibility to all user groups regardless of location, wealth, status or other dividing factors.

Impacts are not only benefits, they also include unintended consequences. For example, land development levies can push investment to one part of a city and create or exacerbate disparities in different neighbourhoods. It can create areas of wealth if finance raised through value capture is only reinvested in the same location, or it can increase poverty if large infrastructure is placed into poor neighbourhoods and displaces communities. Considering the right finance instrument includes understanding the distribution of impact across the affected communities and the city territory, to ensure that there is equity.

Process, planning and impact must be considered at all stages of a project. It is not chronological.

When do you spend the most time considering E&I in your projects?

APPLY IT TO YOUR CITY!

CITY BOARD

E&I for Finance Recommendations

Given the variety of financial instruments, identify those relevant to your context to achieve equitable and inclusive outcomes.

DONKEY The most easily accessed instruments that support your vulnerable communities.

HORSE Instruments that support vulnerable communities and can be accessed with sufficient support and political buy in.

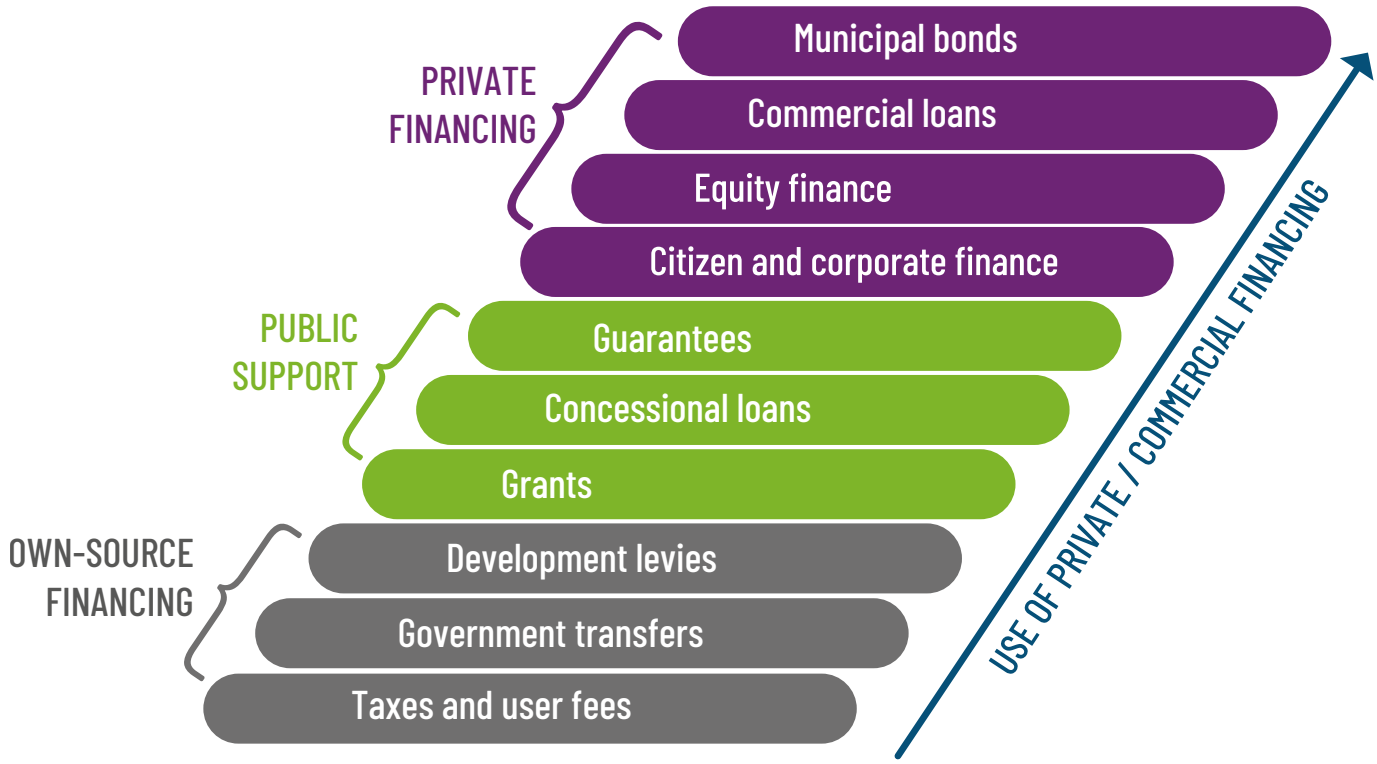
UNICORN Instruments that support your vulnerable communities and could be implemented if there were no limits.

The financing ladder

The 'financing ladder' is a tool developed to show the range of financing options available for cities to pay for sustainable and equitable infrastructure.

Different financing options can be easier or more difficult to access depending on a city's enabling conditions, and the needs of the project. In general, the options at the bottom of the ladder, that are about ringfencing or earmarking a specific component of a municipal budget for a project needs, are easier to access. Those at the top are more challenging because they require certain enabling conditions. It may get harder to access financing as a city moves along the ladder, but the rewards (e.g., cheaper, more accessible credit) become higher.

Private (also known as commercial) finance is increasingly involved as the complexity of a project increases, in terms of necessary enabling conditions like creditworthiness and strong financial governance frameworks.



Not all instruments are listed in the ladder for simplicity, those that are not listed are still relevant under their source.

How can we interpret the 'financing ladder'?

In summary a city that has more autonomy and a strong track record will be better able to access the higher rungs of the ladder.

Consider:

- What is your level of fiscal decentralisation, and what is your credit rating?
- Where does this place you on the financing ladder, and do you think you can move this position?

Example:

In South Africa cities were prohibited to install renewable energy projects. However, after much lobbying,in 2020, the Electricity Regulation Act was amended to allow cities to produce renewable energy in South Africa.

The two main enabling factors that determine a city's position on the ladder are:

> Fiscal decentralisation:

The devolution of taxing and spending powers from central government authorities to sub-national government authorities. In a decentralised system, cities have considerable power to mobilise and decide how and where to invest resources.

Why would a city want fiscal decentralisation?

- Raise resources (e.g., tax) to deliver the services within your mandate
- Deliver services more efficiently with knowledge of the city's needs and people
- Improve local accountability

> Creditworthiness:

An assessment of the likelihood that a borrower (the city) will default on its debt obligations. The assessment is carried out by a credit rating agency and gives out a score, i.e., a credit rating. Credit ratings can be national or international.

Why would a city want creditworthiness?

- Access national or international credit markets
- Attract foreign direct investment
- Issue municipal bonds or project bonds to raise capital for infrastructure quickly
- Spread costs into the future and save against inflation

However, cities face a variety of barriers to becoming creditworthy, including legal, institutional, and economic barriers. Many national governments prohibit sub-sovereign entities from borrowing under the country's legal framework (i.e., lack of fiscal decentralisation).

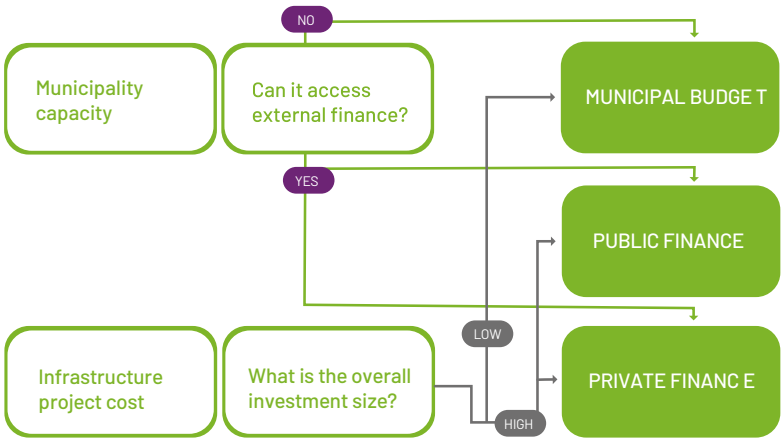
Decision trees

Understanding the right finance mechanism for a project can be difficult considering the large number of actors and instruments, and the important considerations of E&I and the financing ladder.

Using decision trees can help to navigate this complexity.

Two decision trees and some examples:

1. A simple decision tree



The simple decision tree has two starting points:

1. The city's capacity (can it access external funding?)

2. The infrastructure project cost (what is the overall investment size?)

There are three possible sources of finance::

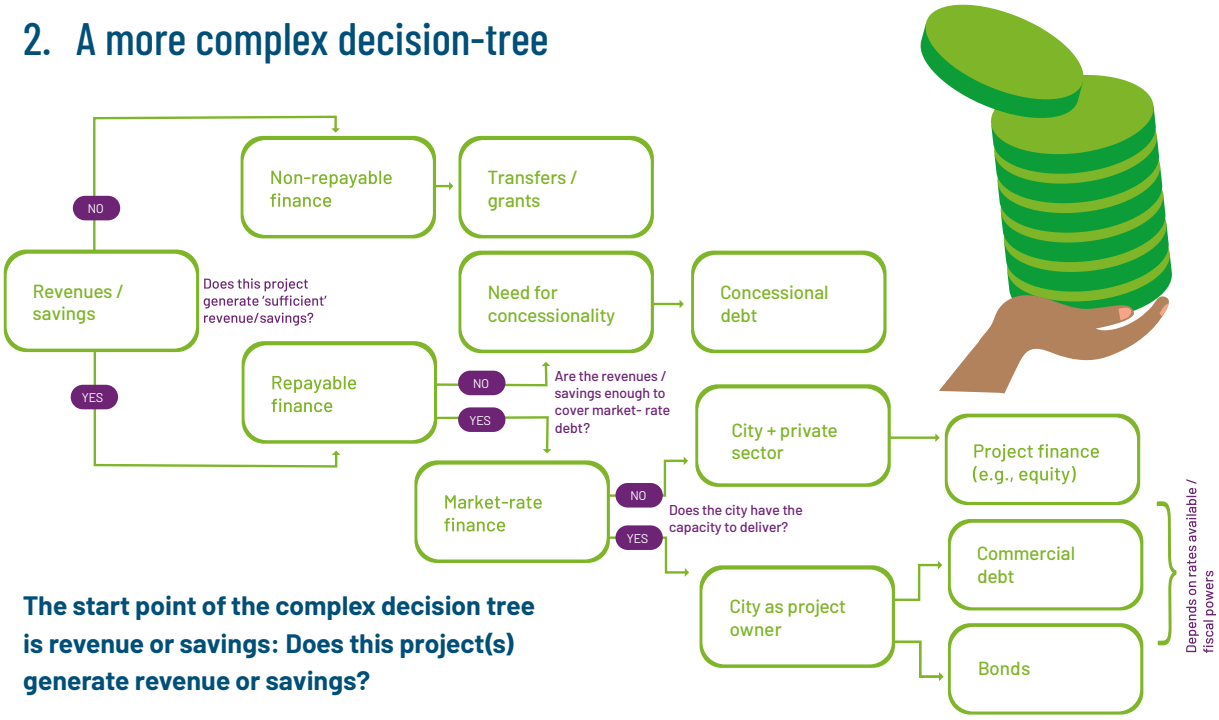
1. Municipal revenue

2. Public finance

3. Private finance.

If the city has limited capacity and therefore no access to external funding, then municipal revenue is the only option by default. Municipal revenue should also be thought of as an option if the infrastructure project's cost is low. If the city has access to external funding, then both public and private finance are options. The next decision tree will break these down further.

2. A more complex decision-tree



The start point of the complex decision tree is revenue or savings: Does this project(s) generate revenue or savings?

If a project is not revenue-generating at all, the city needs to think about how to cover the costs of the project without a reliance on repayable finance. This ultimately means that the city will consider non-repayable finance, either using own-source revenue (taxes, fees, etc), transfers from other levels of government, or grants from development partners that do not need to be repaid.

If, however, the project is expected to generate revenues, the city can begin to look at additional instruments for the financing.

Once a city has determined that the project is likely to generate revenues, a financial model can be created to look at a comparison between the anticipated revenues / savings from the project relative to the costs, both CAPEX and OPEX. The model will show the costs of long-term debt repayment, or debt service, at prevailing market rates. If the revenues generated by the project are unable to meet the debt service and operational costs, there is a funding gap which can be bridged through concessionally, allowing the city to access cheaper financing through concessional debt.

For projects that are both revenue-generating and financially feasible (i.e., revenues/savings are enough to cover market-rate debt), cities have an even greater number of options. At this stage, the city can evaluate if it has the capacity to deliver itself as:

1. City as project owner

Depending on the rates available / a city's fiscal autonomy (can it issue bonds?) / market interest, it can choose between commercial debt and bonds.

2. City in partnership with the private sector

The city can look for opportunities to structure the project such that there can be equity participation from an external entity (as a joint venture or a PPP, for example). It is important to note that the city can borrow/issue debt for projects or against the city's budget as a whole, but that equity can only be used for project finance (the city cannot sell shares in itself.).

Often projects are bundled up and funded through corporate finance mechanisms rather than individually. The city can raise finance for multiple projects together making it a more appealing investment package.

EXAMPLE 1
Hanoi, Vietnam

As part of its long-term climate and transport strategies, Hanoi recognised that it needed to build out its bus and metro rapid transit systems.

Project: Metro Line 3 (US$1bn)

Previous experience: Metro Line 2A operational since 2021.

> Direct subsidies help Hanoi Metro keep prices affordable for the public.

Fiscal powers: Under the control of the central government, local governments can issue bonds and borrow from other domestic sources. Local governments can access, via on-lending, the national government's own foreign borrowing.

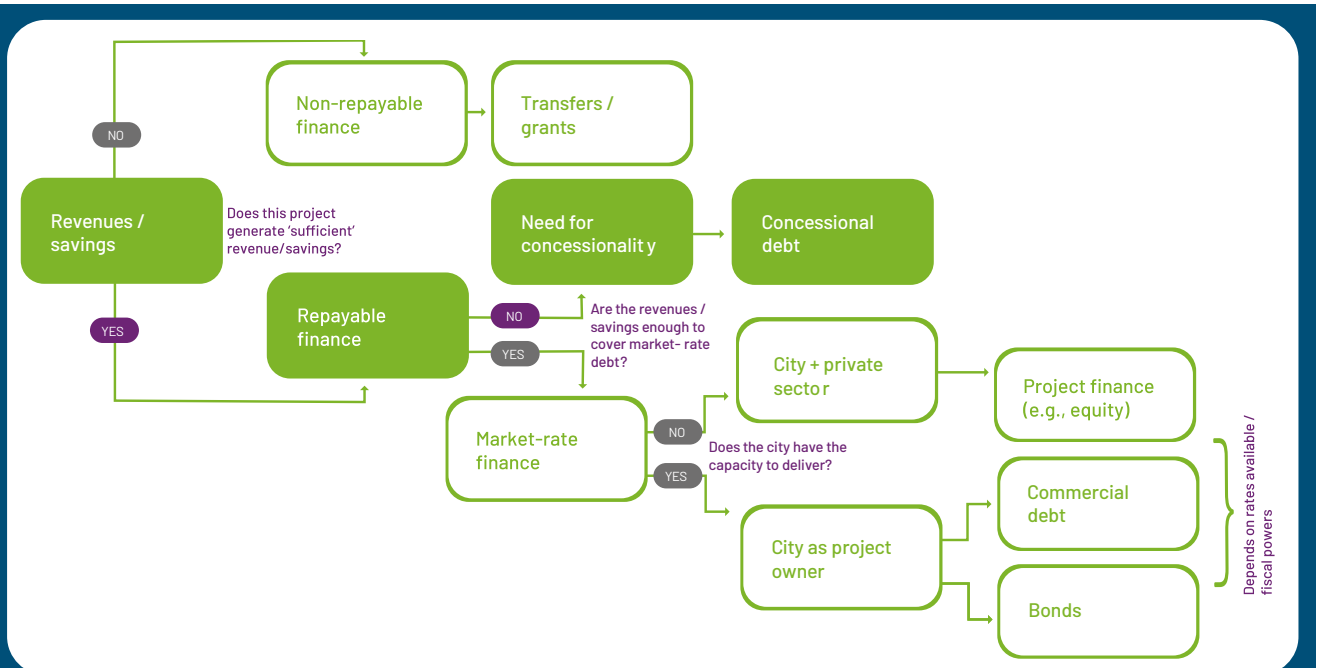
Hanoi is able to access external finance, and the project requires a high investment. Revenue will be generated in the future through ticket sales, but it may not be enough to cover all costs. Therefore concessionality in the form of concessional loans is required.

Hanoi can access concessionary long-term finance to build the transport systems. Project preparation was supported by the Climate investment Funds (CIF) through the Asian Development Bank. The CAPEX was provided by Hanoi itself, alongside the French Treasury (DGT), the French Development Agency (AFD), ADB and EIB. City officials have been able to structure financial mechanisms that match overall city funding needs for a comprehensive transit system with a sufficient repayment period to enable continued economic growth and development.

Structure:

> Project preparation supported by CIF (€100m)

> Capex: €276m from Hanoi's municipal budget + €726m from four donors (DGT, AFD, ADB and EIB)



EXAMPLE 2
Mexico City

Mexico City identified a number of upgrade needs across its transit, building and energy infrastructure to ensure efficiency and lower emissions.

Project: $50m for replacement of traditional street lights with LED lighting fixtures; construction and modernisation of water treatment plans; cleaner BRTs.

Previous experience: $200 million of bonds issued domestically every year (AAA rating)

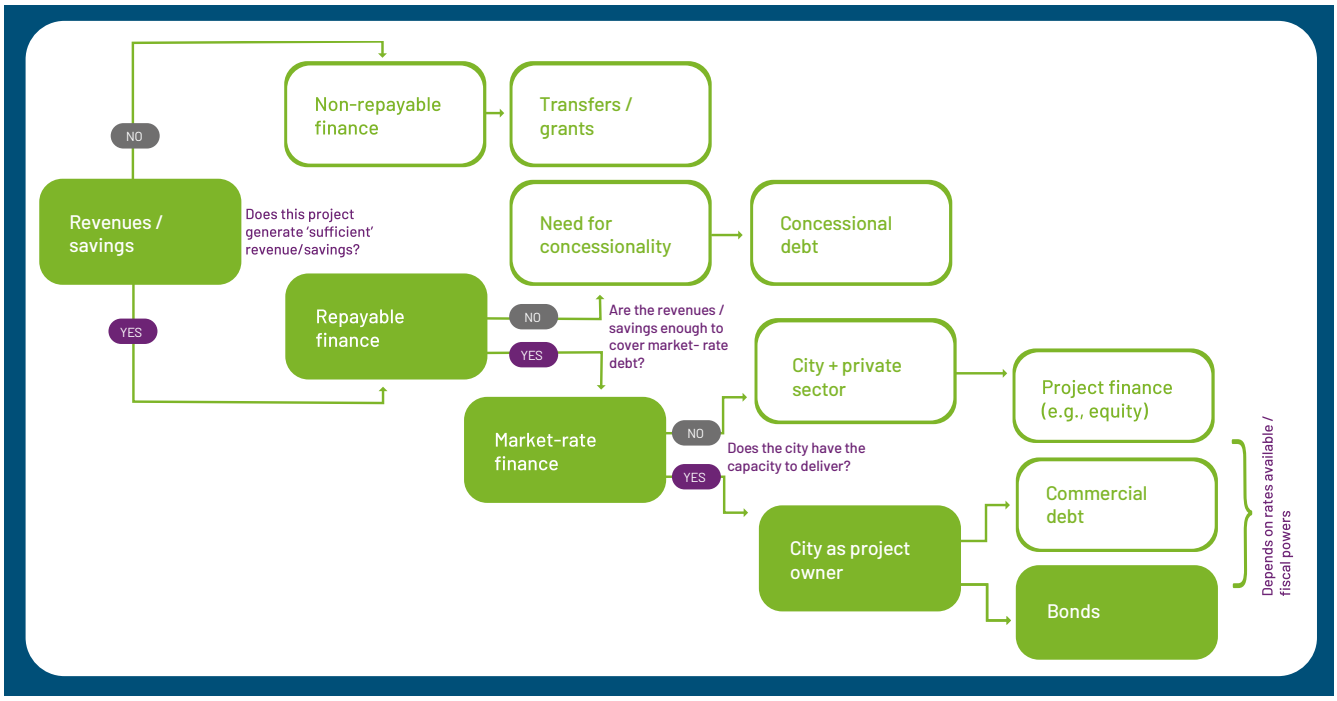
Fiscal powers: Municipalities can borrow and issue bonds without central government approval.

Mexico City can access external finance, and it required a medium to high investment. The project will generate revenue and savings. Street light improvements are one of the easiest and most predictable investments in energy efficiency. Water rates and BRT ticket sales generate revenue.

Public lighting, water, and transport are core municipal services. The city can go ahead as the project owner. They issued a USD $50m 5-year green bond with a 7% return, and issued a second green bond the year after.

Structure:

- $50m, 5-year green bond
- 7% return
- 2.5 oversubscribed



APPLY IT TO YOUR CITY!

CITY BOARD

Finance recommendations and planning

Let's revisit the city board to consider the full range of finance instruments and consider their suitability both to your city context, your location on the financing ladder, and to support the most vulnerable communities.

DONKEY The most easily accessed instruments that support your vulnerable communities.

HORSE Instruments that support vulnerable communities and can be accessed with sufficient support and political buy in.

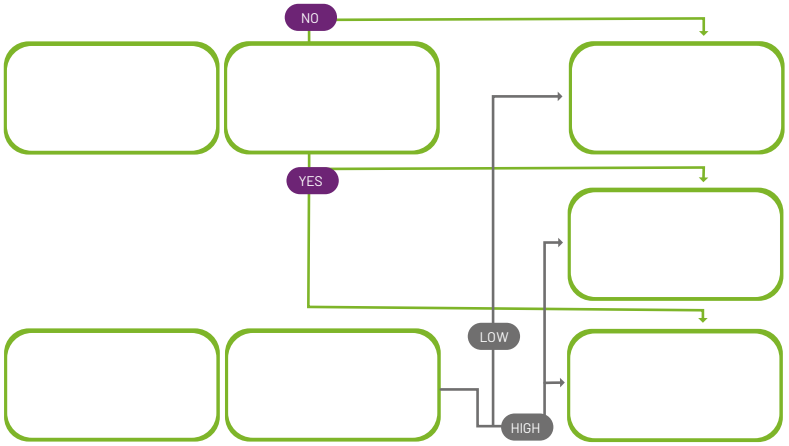
UNICORN Instruments that support your vulnerable communities and could be implemented if there were no limits.

Action planning: Further develop one selected action, a HORSE or UNICORN idea.

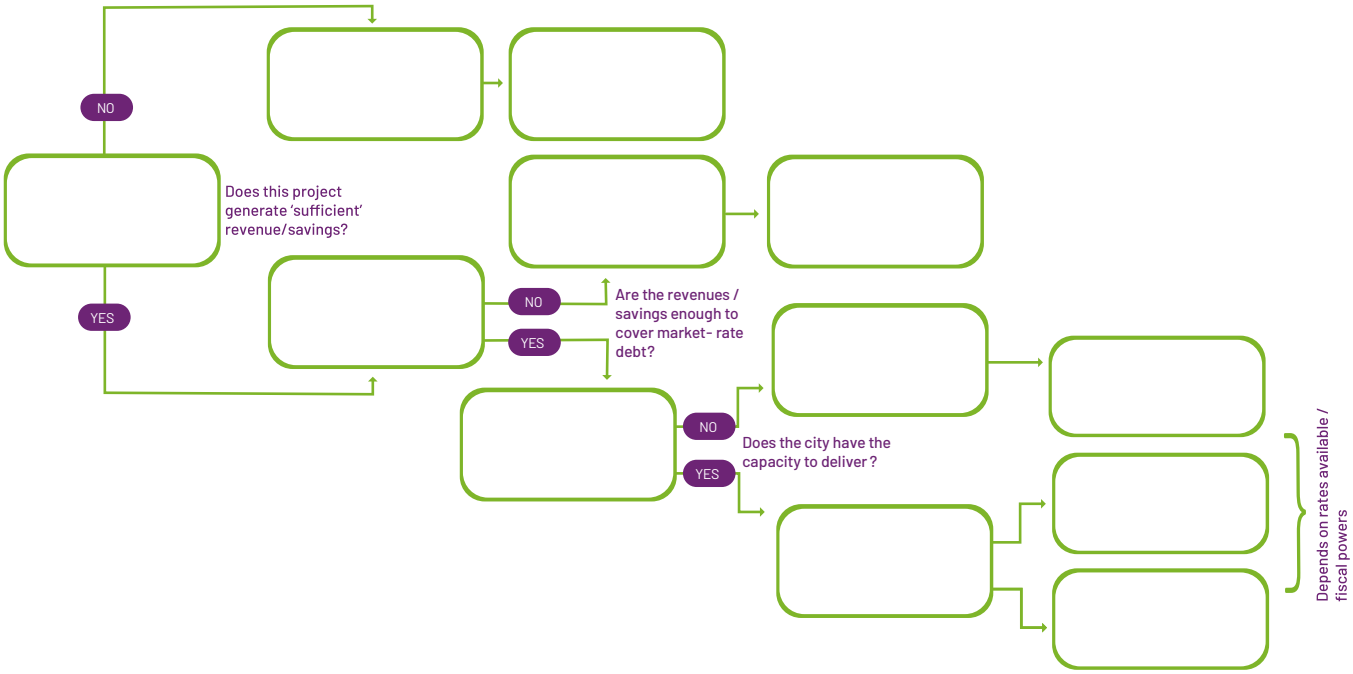
SELECTED IDEA	PARTNERS	ACTIVITIES

Try completing your own decision trees

1. Simple decision tree template



2. More complex decision tree template



CHAPTER 4:
THE PROJECT PREPARATION CYCLE

C40 CITIES FINANCE FACILITY

THE PROJECT PREPARATION LIFECYCLE

What will you learn?

> The project development lifecycle of sustainable and equitable infrastructure

> The finance and E&I considerations at every step of the project cycle

Why is this important?

Finance and E&I are important considerations throughout the project preparation lifecycle, from project inception through to long-term evaluation and maintenance. Keeping these elements in mind throughout your project preparation process will help maximise the benefits of sustainable and equitable infrastructure to all citizens.

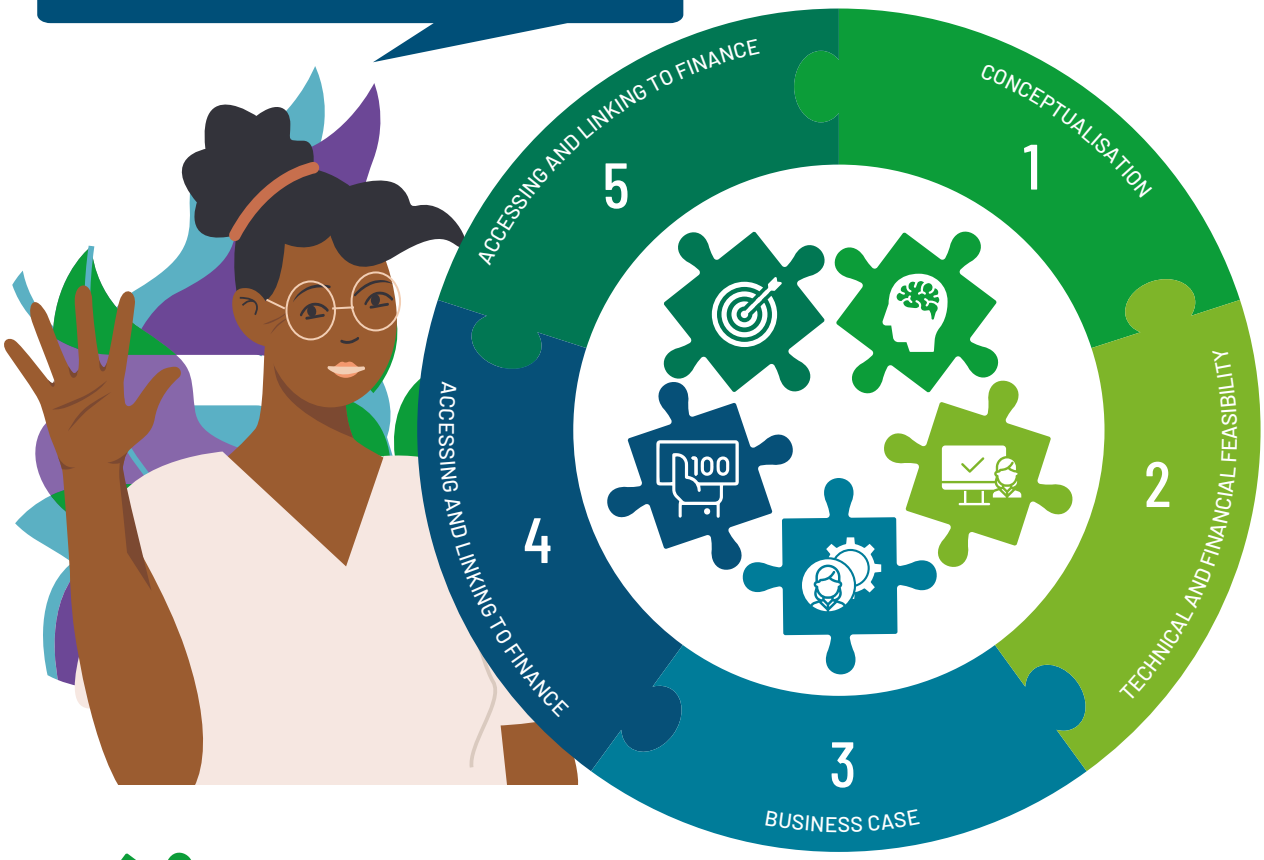
Each city's project cycle is dependent on its context; this is a general, simplified version. Please consider your own city's context and consider how it can be translated and applied to you. The project cycle also needs to be cross-checked against your other important municipal cycles, e.g., political, budget.

RESOURCE

Link to further detail on this chapter: **Embedding Equity and Inclusivity in Sustainable Infrastructure: A Guidance Note for Cities C40 Cities Finance Facility**

Alongside the Guidance Note for Cities, there are four Excel-based tools on solid waste management, mass transit, nature-based solutions and net-zero buildings sectors. The tools support the rapid assessment of a sustainable urban infrastructure project to incorporate E&I in the project preparation process. Link to: **Excel-based tools**

The 5 steps of project preparation



Climate infrastructure projects go through five general steps of preparation:

1. **Conceptualisation:** Defining the project scope and stakeholders
2. **Technical and financial feasibility:** Testing the viability and sustainability of the project
3. **Business case:** Identifying suitable financial instrument(s) to make the case to decision makers
4. **Accessing and linking to finance:** Procuring the financial instrument(s) needed for project implementation
5. **Implementation:** Delivering the project and monitoring its progress

STEP 1 : Conceptualisation

The first step is developing the concept for the project.

> **Identify the problem statement:** What is the main problem to solve? Reference previous studies / data sources if possible.

> **Link the project's objectives to local and national development plans:** Show how the project fits into current local development plans, as well as national development goals.

> **Outline the potential project and describe how it can be a solution:** Describe the overall approach that has been earmarked to address the aforementioned problem.

> **Describe the project's goal and impact:** Provide specific detail on the project's intended impacts, and the area the project will be implemented. Key to mention is the targeted stakeholders and beneficiaries of the project.

In this phase, projects are described at a high level. Key points to consider are:

Finance considerations

> Whether the project will generate revenue or create savings

> Whether any resources / skills are available internally to prepare the project

> How similar projects have been financed in the past

> What business models could potentially be used

> What potential ways are there to finance the projects

E&I considerations

> Identify and engage key stakeholders involved in project development and implementation

> Identify and consider how the project can improve access, participation, empowerment and equity for underserved groups.

> Expand on how the wider impacts of the project will serve citizens

LINK

Inclusive community engagement is a key process in this stage. Review chapter 2 of this workbook to familiarize yourself with the process.

Exercise

Conceptualisation in practice:

An example city in southern Africa has a role in providing electricity to its population through a local utility, which uses the national grid. However, due to drought affecting hydroelectric power and geopolitical shifts, the provision of electricity has been unreliable.

The city has prioritised identifying and selecting solutions to the energy challenge. Officials in the energy and environment departments have recommended looking at energy efficiency improvements and distributed renewable energy generation to improve energy independence.

The city looks at examples from the region. It shares its objectives with donors, the private sector and the community. It develops project profiles and scenarios, mapping out potential funders.

The city also discusses its objectives with school leaders and hospital managers. Officials engage the city's social department to see how these plans can increase cheap and reliable energy access for underserved communities.

What would be your key elements to conceptualise a new project?

STEP 2: Technical & financial feasibility

The second step is preparation.

This involves testing the project's viability through technical and financial feasibility studies.

> Pre-feasibility studies offer a cost-effective way to evaluate potential solutions and select initiatives most likely to achieve the project's goals, focusing on key aspects for success.

> Full feasibility studies design the technical, business, and operational model, using data to determine viability and impact. This includes project technology, ownership, location, and detailed impact and risk calculations.

It includes full design of project technology, ownership structure, exact location, detailed calculation of the impacts and risk mitigation. A detailed financial and operational model is produced with identified finance mechanisms and cash flows (if any) over the lifetime of the project. These studies or designs often need to be done in accordance with specific standards in order to access financing, and each source will have their own standards that need to be adhered to, for example, the International Finance Corporation's Performance Standards for Environmental and Social Sustainability.

In this phase, projects are designed in detail to understand implementation options, risks, and mitigation strategies. Key points to consider are:

Financial risk

> Will the project deliver a return on investment?

> Will the owner meet their debt payment schedule?

> Will the beneficiaries be able to afford the service?

> Will the exchange rate fluctuate significantly over the project?

> If expenses are needed, do they match KPIs, and will these costs fluctuate?

Implementation risk

> Are there any unintended negative impacts that may occur through project implementation (construction risks, impacts etc.) ?

> Are there any potential sources of community backlash, which should be mitigated against?

> Will there be any political changes?

> Will the project be monitored?

> Will the project be maintained?

E&I considerations

> Determine the population / communities / environment impacted by the chosen technologies / initiative

> Consider how the project might disproportionately impact specific groups within the impacted population

> Identify ways to reduce inequalities or mitigate potential negative impacts

> Consider how communities need to be included in potential technical solutions

Exercise

Technical and financial feasibility in practice:

In our example city, two donor-funded project preparation facilities jointly provide the city with technical assistance to complete detailed engineering and financial feasibility studies. As a result of these studies, the city determines that it should consider a blend of grants, concessionary loans and private loans for various building energy and renewable energy projects, based on their revenue generation potential.

The city's energy and environment departments carry out the financial feasibility studies with the support of donors, which suggest a blend of different instruments.

The city considers the potential sites for these energy efficiency and renewable energy measures, and decides on local schools in order to ensure they have stable and cheap electricity. The city discusses this with school leaders, but not directly with parents or the wider community.

Why might you look for a blend of instruments and actors, rather than a single solution?

STEP 3:
Business case

The third step is developing a business case for the city's decision-makers.

This step identifies suitable finance instruments for project delivery and shows they are cost-effective and aligned with the city's development and climate goals, priority sectors and financial position.

Instrument selection can only take place after a careful review of all available options. Each city will follow its own separate path to get to financial decision-making but likely will:

- Determine, using a decision tree similar to the one we explored in this workbook, the most appropriate financing instrument with the finance department
- Validate this decision with both the line department (such as waste, electricity, environment) that is benefiting from the infrastructure (to confirm useful life of asset, anticipated revenue generation if any, etc), and the finance department and municipal council
- Review responses from sources of capital and, if needed, negotiate terms

Finance considerations

- Amount of time to procure financing instrument
- Amount of time and resource required to prepare financing applications
- Review of city's level of indebtedness
- Prioritisation decision over the proposed project, vs other investments e.g., in other sectors

Finance outputs

- Review of procurement processes for chosen financial instrument(s)
- Selection and validation of financial instrument(s)

E&I considerations

- Ensure the project strongly matches other social value objectives
- Develop a social benefits plan to create accountability and responsibility throughout project lifecycle (procurement, operation, monitoring and evaluation and decommissioning)
- Develop clear and measurable equity and inclusion-based indicators to support Environmental, Social and Governance (ESG) requirements

Exercise

Business cases in practice:

Armed with the financial models and technical feasibility studies, officials in our example city bring forward two medium-scale energy projects and a retrofit program for local schools to the municipal council for approval.

City residents express concerns about the need to temporarily close schools for the retrofit program. The municipal council asks for the project to be scaled down, which drastically changes the financial model, making the project less profitable and less attractive to investors.

The municipal council gives approval to the finance department to begin the procurement of both the concessional and private loans for the two energy projects. The investor for the schools project (a climate fund), however, pulls out because of the project change.

The business model is about considering all actors and mitigating risk. What E&I measures could have avoided this community backlash and supported a stronger business case?

STEP 4: Accessing & linking to finance

The fourth step is financial procurement.

In this step the city's finance department is enagaged and they procure (which involves drawing up legal contracts, obtaining relevant signatures, etc.) a financial instrument(s). Risk mitigation structures are developed at this point to reduce exposure to risk.

Financial procurement signals the end of the set-up phase (preparation finance), and the beginning of the implementation phase (implementation finance).

Project proponents (e.g., climate, energy, mobility team) will hand over the decision-making on the financial instruments to the city's investment / treasury department, but should be consulted on any further technical questions.

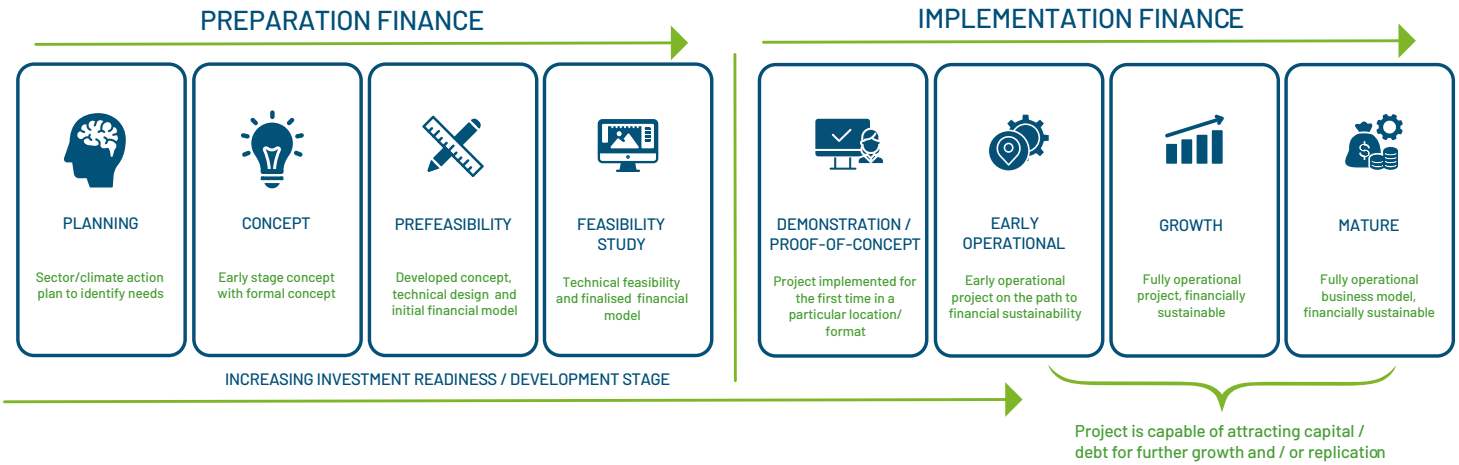
In reality financial planning occurs throughout the project cycle, and procurement of different instruments may occur at different time points, although the main costs are covered with instruments procured at this stage. As with all steps of the project cycle, it is iterative.

Finance considerations

- Procurement documents for financial instrument(s), including negotiations with instrument provider / source of capital
- Legal documentation
- Financial risk assessment and financial risk mitigation strategy

E&I considerations

- Underline efforts on equity and inclusion from the previous stages and include in the financing and contracts.
- Align with investment partners that have a shared commitment to equity and inclusion.
- Integrate equity and inclusivity into procurement strategy - from drafting scope to advertising, evaluating and scoring offers, and contracting.



Exercise

Assessing and linking to finance in practice:

Overcoming the previous issue, our example city comes up with a finance option to take forward.

The finance department, upon receiving instructions from the city leader's office, instructs staff to put together a brief procurement document determining:

> Financing sought as grants (roughly 20% of the total project costs)

> Financing sought as concessional loans (roughly 50% of the total project costs)

> Financing sought as commercial loans (roughly 30% of the total project costs)

The document was released to a pool of 12 development partners that could offer concessionary loans and grants, and to domestic commercial banks.

5 of the 18 development partners submit a financing offer to the city, all alongside a private investor. The municipal council selects the one with the lowest fixed interest rate and which shares the city's commitment to equity and inclusion. The development partner is especially keen on the local employment programme of the city's project, and encourages the city to include a gender element to ensure gender parity in the green jobs the project creates.

Do you have experience in finance procurement, either review your past experience here, or take notes of key considerations:

STEP 5: Implementation

Implementation is about setting up the delivery of the project, building the infrastructure (if necessary), rolling it out and maintaining it. Implementation entails:

- Setting up the delivery of the project
- Receiving and spending project related finances
- Construction, commissioning and monitoring

The implementation phase, which may run for multiple years for large infrastructure projects, begins when money flows from sources of capital via the city to the entities responsible for the construction of the projects.

Monitoring and evaluation is crucial to capture lessons learnt that can be fed into future project designs. The evaluation phase of the project may occur simultaneously with the operations phase.

Evaluation should cover both the technical and financial components. Capturing lessons on finance can help to inform future financial decision-making (e.g., process timeline, approval processes, rates and transaction costs).

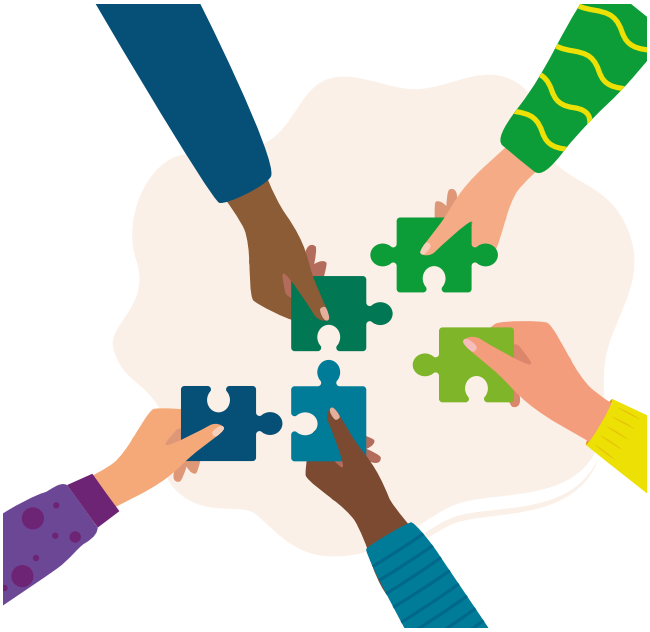
Finance considerations

Monitoring of financial performance for the project by reviewing

- Revenue generation
- Expenses (operations costs, maintenance etc.)
- Debt service payments (if applicable)
- Net profits

E&I considerations

- Monitoring of social and environmental impacts identified during the project preparation stages
- Ensure that the focus on equity and inclusion is foreseen
- Monitoring and evaluation strategy is crucial to track whether the desired outcome of a project is being achieved, and to determine if action is needed to course correct
- If E&I goals are not being met, the project must be reviewed and changes made



Exercise

Implementation in practice:

Work on the two energy projects at our example city begins immediately upon receipt of funds. One project runs on time and within budget. Given unexpected delays, the second project falls 9 months behind schedule.

The city had negotiated a two-year grace period with the funder consortium, thus it is still able to begin its debt service under the initial terms of the agreement.

Through engaging with the relevant communities, the delays are communicated widely, and the city establishes a grievance mechanism so that feedback can be effectively given to the city. The employment programme is able to continue despite the delays, because of political buy-in from the city.

List your key considerations to mitigate any risks during project implementation, and ensure both investor and community buy-in over the lifetime of the infrastructure:

Partnering with project preparation facilities

Project preparation can be a costly process (2-10% of implementation funding) and project preparation facilities (PPFs) can provide valuable financial and capacity resources.

Identifying a PPF

- Each PPF has their focus areas and their own criteria. It's a smart idea to keep an eye on this while you develop your project
- Some PPFs are linked to implementation finance. It's in the interest of the bank to provide PPF support to projects that will receive funding
- These are competitive applications. It's crucial that project preparation is done at a very high standard and if you have earmarked potential funders, reach out to them as early as possible and ask what their standards for certain studies are/processes that need to be ticked. Some of them have country offices that can provide support
- Local development banks and commercial banks may also have project preparation facilities that may be suited to your projects. This, along with municipal own revenue sources, is often a much simpler and quicker way in which to undertake project preparation work

Exercise

Build your project overview, taking into account the different aspects that will support your project within your team, to other key stakeholders, or to a project preparation facility.

DESCRIPTION

- What is the scope of your project?
- What are the project's intended outcomes?
- How does the project align with local and national plans and policies?

SCALING UP

- Can your project be scaled up within the city? - If so, how?
- Can your project be replicated by other cities? - If so, how?

FINANCE AND IMPLEMENTATION

- What are the project's expected financing sources?
- What savings and revenue generation could the project result in?
- Any key implementation partners?

PROJECT IMPACTS

- What are the project's potential impacts (environmental, social, economic)? Including negative impacts, and mitigation.
- What are the benefits?
- How are they distributed?
- How does your project incorporate equity and inclusion considerations?

CAPACITY NEEDS

- Which departments are involved?
- Have similar projects been implemented before?
- What knowledge and skills does the city need to develop in order to prepare and implement this project?

TECHNICAL SUPPORT

- What support do you need to advance your project to implementation?
- What further studies or technical support is needed?

Resources

C40 Cities Finance Facility

- C40 Cities Finance Facility
  https://c40cff.org/
- City Academy on Finance and Equity (CAFE
  https://c40cff.org/news-and-events/the-city-academy-on-finance-and-equity-cafe
- The C40 Knowledge Hub
  https://www.c40.org/the-c40-knowledge-hub/

Playbooks and toolkits for equity and inclusion

- Inclusive Community Engagement Playbook, 2019, C40
  https://c40.my.salesforce.com/sfc/p/#36000001Enhz/a/1Q000000Mea7/3zH_zQzfhUmD_KNamcD1aPz5zvabD4XtoDO9yfEMgFM
- How to embed equity and inclusivity in sustainable infrastructure, 2023, CFF
  https://c40cff.org/knowledge-library/how-to-embed-equity-and-inclusivity-in-sustainable-infrastructure

Project preparation facilities

- C40 Cities Finance Faculty
  https://c40cff.org/
- Sub-National Climate Fund
  https://www.subnational.finance/
- City Climate Finance Gap Fund
  https://www.citygapfund.org/
- Adaptation Fund
  https://www.adaptation-fund.org/
- Green Climate Fund (GCF)
  https://www.greenclimate.fund/
- Global Environmental Facility (GEF)
  https://www.thegef.org/

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