City climate finance: landscape, barriers and best practices

Deliverable D7.1

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Abbreviations and acronyms

Acronym	Description
AMIF	Asylum and Migration Fund
BMVI	Border Management and Visa Instrument
CEF	Connecting Europe Facility
CF	Cohesion Fund
CINEA	European Climate, Infrastructure and Environment Executive Agency
CM	Capital Markets
COPs	Conference of the Parties
CSR	Corporate Social Responsibility
DG CONNECT	Directorate-General for Communications Networks, Content and Technology
DG REGIO	The Commission's Directorate-General for Regional and Urban Policy
EAFIP	European Assistance for Innovation Procurement
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EEEF	European Energy Efficiency Fund Technical Assistance
EIB	European Investment Bank
ELENA	European Local Energy Assistance
EMFF	European Maritime and Fisheries Fund
EPC	Energy Performance Contracting
ERDF	European Regional Development Fund
ESCo	Energy Saving Company
ESF+	European Social Fund Plus
EU	European Union
EUCF	European City Facility
FI	Financing institution
GCAPs	Green City Action Plans
GO bonds	General Obligation Bonds
IPA	Instrument for Pre-Accession Assistance
ISF	Internal Security Fund
ITC	Information and Communication Technologies
JASPERS	Joint Assistance to Support Projects in European Regions
LRAs	Local and Regional Authorities
MBs	Municipal banks
MFF	Multiannual Financial Framework
MRV	Measuring, Reporting, Verification
MSMEs	Micro, Small and Medium-sized Enterprises
NZC	Net Zero Cities
OECD	Organisation for Economic Co-operation and Development
PCP	Pre-Commercial Procurement
PDA	Project Development Assistance
PPI	Procurement of Innovative Solution
PPP	Public Private Partnership
RRF	Recovery and Resilience Facility
SECAPs	Sustainable Energy and Climate Action Plans
SMEs	Small and Medium Enterprises
TA	Technical assistance
TAP	Transformative Actions Program
TSI	Technical Support Instrument
WP	Work Package

Summary

The Working Package 7 of the Net Zero Cities project will support cities to raise the required capital for their climate ambition to materialise. This report aims at assessing and characterising the current capital ecosystem, building a shared understanding of effective climate finance and key strategic relationships. This will allow in a later stage the support of cities which encompasses knowledge transfer and development of capabilities, and to align with and ensure effective delivery of services to cities.

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This report has mainly focused on the European level while highlighting some good practices at the national or local level. It is based on academic research, the experiences of consortium members and interviews with cities of different sizes and geography.

This report, therefore, maps all the stakeholders involved in financing the transition of cities to net zeros, finance recipients, facilitators as well as financial actors (chapter 1). This makes it possible to realise the multitudes of actors to be invested for successful eco-transition financing.

Technical assistance facilities to support cities in developing projects and capacities, as well as barriers and best practices to accessing them, are highlighted in Chapter 2. It should be noted that these are numerous but are sometimes subject to stiff competition between cities for access.

The report highlights the diversity of EU funds and their impact at the local level, as well as the own resources and instruments of cities. (Chapter 3).

The diversity of willing and able financial institutions to finance the transition to climate neutrality and innovative financial solutions are detailed in chapter 4. It should be noted that although cities sometimes find it difficult to engage private capital, the financial sector is undergoing a major evolution and is willing to work with cities.

Finally, Chapter 5 summarises the barriers cities face in accessing finance for the green transition. Some of the barriers such as lack of capacity, lack of skills, difficulties in navigating the multitude of possibilities or in combining different types of financing are specific to cities and their administrations. While other barriers such as lack of national support, legislative barriers, non-adapted fund programmes are specific to the European and national framework. This chapter also highlights the good practices and levers identified in the municipalities as well as at national and European levels.

This report therefore highlights that public and private funding is available but has difficulties landing in cities. It is therefore a question of supporting cities to access it and to acquire the know-how to finance their transition to net zero. The role of Net Zero cities on this aspect will be essential for the cities selected in the framework of the mission 100 neutral cities in 2030 to reach their objective.

Keywords

Financing – Funding – Local authorities – Cities – Climate Neutrality -Barriers

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Introduction

Europe's cities are at the forefront of efforts to achieve a climate-neutral Europe by 2050. Cities of all sizes and regions in Europe have a leadership role in driving the ecological transition and transforming European urban spaces. In this framework, the EU's Mission of "100 Climate-Neutral and Smart Cities by 2030" will involve local authorities, citizens, businesses, investors as well as regional and national authorities to deliver 100 climate-neutral and smart cities by 2030 and ensure that these cities act as experimentation and innovation hubs to enable all European cities to follow by 2050.

The Net Zero Cities (NZC) project support the EU's mission implementation by acting as service-oriented platform supported by world-class practitioners. In this working package, NZC focuses on financing cities' transition to climate neutrality.

Indeed, there are multiple options and today the conditions are ripe for the private sector to invest in the transition towards net zero and to support cities in their approach. Financial activities to support the transition have grown significantly in recent years. However, the right conditions need to be in place for private capital to flow towards net zero at scale. Cities within the NZC project will also be encouraged and supported to go beyond the existing public funding and to seek these private capital and financing options.

This report aims at providing Net Zero Cities partners and European cities with an overview of the funding and financing possibilities. Indeed, there is a growing range of funds and financing options available for cities on their journey towards climate neutrality. This report identifies the players and instruments/programmes along the value chain of capital towards net zero, including both public and private capital.

Moreover, this report will focus on the analysis of barriers and levers of finance for cities to better understand and support cities throughout the NZC project. The aim is to highlight the difficulties in accessing certain funds or financing because of the way they operate, but also the more structural barriers that prevent cities from seeking such financing. Some good practices of cities as well as programmes already in place to accompany cities on these difficulties are also mentioned for replication.

Regarding the methodology, this report was written by the Net Zero Cities partners by combining academic research, the experience of members working directly with cities or financial actors and feedback stemming from the focus groups organised in the framework of WP13 (which counted with the participation of representatives from more than 60 cities) and ad-hoc meetings with 8 European cities of different size and geographical background.

This report focuses primarily on the European level, citing the funds and financing available for a large majority of EU member states. The national and regional level has been little explored for practical reasons of limited capacity.

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1 Stakeholders of the city financing landscape

In order to better identify all the funds that cities have direct or indirect access to, and that can facilitate (or hinder) a city's development towards net zero emissions, this report aims to shed light on the financial landscape of cities. To this end, this section focuses on identifying main stakeholders that revolve around and within municipalities regarding funding and financing activities that potentially impact emissions within the city's boundaries. The presented stakeholder map is non-exclusive and may vary, depending on city characteristics, such as size, region or country, infrastructure, amongst others.

Stakeholders: smart, sustainable and 100 percent climate neutral cities require the support, involvement, and commitment of a variety of internal and external stakeholders. **Finance recipients and facilitators**, in this context, are defined as those stakeholders that are actively – directly or indirectly – involved and benefit from financing activities taking place within the cities, while **financial actors** are entities that are connected to the city due to their shared interests and activities, and function as sources of financing. Within the perspective of city financing, it is highly imperative to identify relevant stakeholders who have similar interests and activities, as they have the potential to provide the required investment capital and are key players in ensuring the realisation of the Net Zero goals.

City financing stakeholder map	
Finance recipients and facilitators	**Financial actors**
Municipal Authorities	European Union, EIB
Public Institutions	National /state/ regional government
Urban/Regional Planners	Commercial Banks
Utilities	Public Private Partnerships (PPPs)
Academic, Research institutes and Consultancies	Capital Markets
Media	Philanthropic Foundations
NGOs/Social Networks /Associations	Corporate Social Responsibility (CSR)
Local private enterprises and companies	Retail investors
Citizens	Crowd Funding platforms

Table 1: City financing stakeholder mapping
Source: Authors.

1.1 Finance recipients and facilitators

Municipal Authorities: The municipal council is the elected representation of the city mandated for its development. Municipalities can raise capital from municipal budget, internal fund-raising instruments for project financing and through external financial stakeholders. The city council decides upon the priority areas, the budget, financial flows, and the projects to invest in. The mayor also plays a major role in influencing the investments in the city.

Public Institutions: An important factor in execution of a Net Zero city masterplan is strong political will from the council members, city mayor and the political parties in power at the regional, state, and national governments. Commitments from political parties ensure the long-term stability of the projects. The politically favourable landscape would differ in each country, state, and city.

Urban/Regional Planners: Urban planners help shape the policies and bring in the holistic perspective of urban and regional development. While mainstreaming sustainability, inclusiveness, and resilience in the planning processes by engaging and partnering with citizens, community groups, public agencies, private sector, and academic institutions, it is also the role of planners to evaluate the commercial viability of the proposed plans to make it financially lucrative for investors.

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Utilities: Utility companies are municipal owned companies or at times privately owned companies that can support the municipalities in their net zero transition. They have a public mandate to provide fundamental services to the citizens and other establishments within the city. Utility companies can be the implementing partners of the mayor's development programs. Energy, water, wastewater, solid waste, and transportation are some of the utilities either managed directly by the city or privatised with the task to provide the essential services. Regarding financing, it is relevant to mention the utility's ability to raise capital for city projects that might go beyond city budgeting capabilities.

Academia, research institutes and consultancies: Academics play the role of generating the much-needed human resources, facilitates knowledge development and promotes innovation amongst projects. Research institutes in the field of finance advise and support the evidence-based decision-making process. Consultancies engage in feasibility studies, influence the project development process and can support in identifying the funding sources.

Media: The media's role is to inform. It can influence the projects through information coverage on problems and advantages of the proposed project activities, provides transparency and moulds public opinion. It can influence the funding especially from the private sector.

NGOs/ Social Networks: Social networks, non-profit organisations are specific interest groups responsible for information exchange, consensus building at the grassroot level and for actively engaging the community. These networks represent citizen interests and can engage in social movements that shape activities within the city boundaries. They can influence the funding from Philanthropic foundations.

Associations: Associations represent certain industry sectors and the professional interests of its members and can influence the CSR funding.

Retail investors/Local companies: Companies are the major contributors of revenues within cities. They fulfil the role of economic growth of the city, job creation, and innovation. Companies can directly support the financing of projects that align with their business interest and can contribute partially or fully to the city net zero goals.

Citizens: As the electors of the municipal authorities, citizens communicate their support to political agenda and participate in the decision-making process by providing valuable feedback to the development plans. They experience the urban space and report inefficiencies. Their active engagement contributes to the success of the project.

1.2 Financial actors

European Union: The EU aims to cut greenhouse gas emissions by at least 55% by 2030. The EU makes available funds through funding programs and through the European Investment Bank to support Cities in their endeavour towards climate neutrality to further EU policy Objectives.

National /State/ Regional governments: Similar to the EU, the national/state and regional governments provide funds to cities for projects based on their set priority areas.

Commercial Banks: The cities can avail short-term or long-term loans from commercialised banks for their developmental projects.

Capital Markets (CMs): Cities can also acquire their funds from capital markets. Debt and equity markets, respectively, offer lending and investing opportunities for investors in city projects. The strategic economic needs of a city through private sector investments can be realized through capital markets.

Green Infrastructure Funds: Large funds, such as infrastructure, venture capital or private equity funds, pursue investment activities along certain KPIs and can have a significant influence on shaping city landscapes.

Philanthropic Foundations: Philanthropic foundations are entities that aim at making a positive contribution to societies using donated assets of individuals or organisations. Endowments, charitable

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trusts, community foundations, corporate foundations are examples of philanthropic organizations. The European Philanthropy Coalition for Climate promotes the engagement of foundations in climate related social initiatives. (Philanthropy Europe Association, 2022)

Corporate Social Responsibility (CSR) funds: CSR activities aims at raising awareness amongst large corporations, of the kind of impact they are having on all aspects of society (economic, social, and environmental), and the policies, and practices need to be undertaken to have a positive influence on the society. Depending on the size of the portfolio of the CSR foundation or the CSR funds, grants for causes with social components are available. Such grants can supplement the capital required by a municipality to be invested in the social component of the project. (Investopedia, 2022)

Private sector: Private sector actors, such as companies outside the Citys' jurisdiction, can also be external stakeholders. Private entities can contribute to municipality development projects in various forms from partial direct investment to full indirect investment.

Innovative funding sources (Crowd funding platforms): Alternative sources of funding do exist for cities. An example is crowd funding platform, which are an innovative method of raising capital primarily through online platforms where a large number of individual investors and project developers meet.

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2 Technical Facilities for Net Zero Cities

Technical facilities are developed to provide targeted support to an organisation where local government in the development of their knowledge and skills to develop and carry projects. This encompass technical assistance and project development assistance which are often not differentiated. The section below will present the main technical and project development assistance facilities for local authorities existing at the EU level.

2.1. European Local Energy Assistance (ELENA)

2.1.1 Description

ELENA helps public authorities and private entities to implement energy efficiency, renewable energy, and sustainable transport projects, thus reducing greenhouse gas emissions.

Lead: European Investment Bank and the European Commission under Horizon 2020 programme.

Scope: The ELENA facility is divided into 3 envelopes to cover 1. Energy Efficiency 2. Sustainable residential focusing one energy efficiency and renewable energy projects 3. Urban transport and mobility. The funding can be used to cover costs related to feasibility and market studies, energy audits, business plans, energy audits, programme, and financial structuring, as well as to the development of tendering procedures, contractual arrangements, and project implementation units.

Size: The project size needs to be above EUR 30 million. Co-funding is permitted, and ELENA can cover up to 90% of the eligible cost (minimum co-funding of 10%).

2.1.2 Procurement process and implementation

Procurement process: **Projects are evaluated, and grants allocated on a first-come-first-served basis. Local authorities submit an initial proposal (by email) using the pre-application form. If the projected is selected (list of criteria here) and complies with the eligibility criteria, the ELENA team will support local authorities along the application process which includes the application form and proof documents. The European Commission provide the final approval.**

The required leverage factors of the ELENA facility are 1:20 for the sustainable energy envelope, and 1:10 for the residential and urban transport envelopes.

Implementation: **The ELENA grant is disbursed to the selected beneficiaries in stages, as follows: 40% at the signature of the Funding Agreement between the beneficiary and the EIB; 30% at the interim stage with the approval of the interim report; 30% at the end of the ELENA support (subject to the EIB approval of total eligible costs, of the leverage factor achieved and of the final implementation report).**

The duration of project supported by ELENA are limited to 3 or 4 years depending on the envelope.

2.1.3 Barriers & best practices identified

Barriers**:** According to the local authorities and their representants consulted, applying to the ELENA Facility is very demanding. It requires the mobilisation of a full time equivalent in the local administration. Certain smaller municipalities do not have the internal resources to apply to this facility. There is a correlation between the size of the project and the difficulty of the application process. If the risk profile of projects is the same, size should not be a determining factor in the administrative burden of application; as the ELENA grants are quite important, the procedure is more complex.

Best practices**:** The ELENA facility has an iterative process which allows a discussion between the applicant and the facility team to improve the quality of the application during the process. Another

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advantage of the ELENA grant is that local authorities can use other facilities described below as a steppingstone to ELENA, having had the necessary studies and evidence financed as well as the required staff.

2.2. Transformative Actions Program (TAP)

2.2.1. Description

The Transformative Actions Program (TAP) is a global initiative that supports local and regional governments with transforming their low-emission and resilient development infrastructure concepts into mature, robust and bankable projects. It contributes to closing the finance gap and scale up subnational climate finance. Launched in December 2015, TAP functions as a pre-feasibility pipeline of projects from cities around the globe, aggregating project information in a single space and connecting cities with services around project development assistance and investment readiness.

Lead: ICLEI – Local Governments for sustainability leads the initiative, in partnership with funding partners and supporting organisations. Partners include public and private finance institutions, United Nations and technical support agencies, city and subnational networks and associations, research, and other non-governmental organizations, as well as philanthropic donors.

Scope: TAP targets transformative local projects especially (hard) infrastructure project. It covers a variety of sectors including energy, transport, water, waste, land-use, forestry and information and communication technology (ICT). TAP supports projects mainly in Latin America, the Caribbean, Africa, and Asia.

Size: TAP is currently supporting 74 projects globally, for a total value of EUR 2.4 billion.

2.2.2. Procurement process and implementation

Procurement process: TAP mobilises projects through annual calls. The projects that present a high transformative potential are shown to potential investors and connected to project preparation facilities, and financial partners. In a first instance, projects are screened to check the eligibility criteria, information provided, the transformative potentials and financial feasibility. Then, selected projects are added to the TAP pipeline and gain access to services provided by ICLEI and TAP partners. Projects then receive capacity building and technical assistance, access to investors, project preparation facilities, financial service providers and increased international visibility.

Implementation: Then, selected projects are added to the TAP pipeline and gain access to services provided by ICLEI and TAP partners. Beneficiaries receive capacity building and technical assistance, access to investors, project preparation facilities, financial service providers and increased international visibility.

2.2.3. Barriers & best practices identified

Best practice: To close the gap between financial investments needed to achieve the goals of the Paris Agreement and what is invested on the ground, more bankable projects need to be available to investors. The current investment gap is due to a shortage of bankable projects rather than lack of interest or potential financing capacity. TAP helps to improve project bankability through a variety of tools, support with project preparation, and increased visibility to potential investors.

Best practice: TAP has received the attention of large international events such as the COPs and the Resilient Cities Global Forum. This international visibility helps to raise awareness of available projects and attract the interest of potential investors.

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2.3. EBRD Green Cities Programme

2.3.1. Description

EBRD Green Cities aims at building a better and more sustainable future for cities and their residents. The programme has three central components:

(1) Green City Action Plans (GCAPs): Assessing and prioritising environmental challenges and developing an action plan to tackle these challenges through policy interventions and sustainable infrastructure investments.

(2) Sustainable infrastructure investment: Facilitating and stimulating public or private green investments in water and wastewater, urban transport, district energy, energy efficiency in buildings, solid waste and other interventions that improve the city's adaptation and resilience to climate shocks.

(3) Capacity-building: Providing technical support to city administrators and local stakeholders to ensure that infrastructure investments and policy measures identified in GCAPs can be developed, implemented and monitored effectively.

Lead: European Bank for Reconstruction and Development (EBRD).

Scope: The EBRD Green Cities Programme supports cities in identifying, prioritising and managing cities' environmental challenges and supporting them in the design of sustainable infrastructure investments and policy measures to address these challenges in the medium and long term. The programme is implemented in cities from the EBRD Europe Regions[1].

Size: With over EUR 3 billion in funding, the programme builds on the EBRD's experience in supporting cities to invest in sustainable municipal infrastructure.

2.3.2. Procurement process and implementation

Procurement process: Cities in the programme are encouraged to develop a Green City Action Plan (GCAP), to assess and prioritise environmental challenges, and developing an action plan to tackle these challenges through policy interventions and sustainable infrastructure investments. To develop this plan, the cities have to follow the GCAP methodology (EBRD, Green Cities, 2016), that was built based on the ICLEI Green Climate Cities Methodology. The GCAPs take the city's financial and budgetary context into account and identify potential sources of finance for the investments and policy measures identified.

Implementation: Then, cities must implement the GCAP to facilitate and stimulate public or private green investments. Working with local stakeholders, the city implements the infrastructure investments and policy measures as outlined in the GCAP. The EBRD can support the local government by providing access to finance, as well as concessional loans and grants.

2.3.3. Barriers & best practices identified

Best Practice: The EBRD has a strong capacity-building programme to provide technical support to city administrators and local stakeholders to ensure that infrastructure investments and policy measures identified in GCAPs can be developed, implemented, and monitored effectively.

[1] In the EU, the EBRD works in Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, Slovenia, Cyprus, Greece, Romania, Bulgaria (full list of beneficiary countries here)

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2.4. European City Facility (EUCF)

2.4.1. Description

The EUCF aims at supporting municipalities/local authorities, their groupings, as well as local public entities aggregating municipalities/local authorities across Europe to implement actions laid out in their climate and energy action plans. Beneficiaries are supported in developing investment concepts (i.e., a document that translates an investment project idea into a financial language to mobilise financing for its realisation).

Lead: Horizon2020 project, managed by the European Commission (CINEA) and coordinated by Energy Cities with the support of Climate Alliance, FEDARENE, ENVIROS and Adelphi.

Scope: Sustainable energy, which includes the following targeted investment sectors: public, residential buildings and tertiary (non-municipal) buildings, efficiency improvements in equipment/ facilities, development and use of building integrated renewables, district heating modernisation or fuel switch to renewables, smart grids, sustainable urban mobility (e.g. public transport, charging stations, etc.), and innovative energy infrastructure (e.g. citizen energy communities, innovative approaches to public lighting, wastewater treatment plants).

Size: EUR 60 000 grant per beneficiary. The project has over EUR 12 million to support beneficiaries through the mechanism of cascade funding over 2 years.

2.4.2. Procurement process and implementation

Procurement process: The process is organised in different calls (4 calls between May 2020 and June 2022) open for about 2 months, each organised in 3 geographical areas: Central and Eastern Europe, Nordic countries & Western Europe, Southern Europe.
The application process is rather simple and straightforward: the application is submitted and requires few technical (SECAPs) and political (letter of support from the mayor) documents. During the process, applicants are supported by country experts.
Joint applications with several local authorities are encouraged. The application has been enlarged to public entities aggregating municipalities/ local authorities as the metropolis.
The evaluation process is based on a point system with five criteria: investment size, energy savings, governance structure, stakeholder engagement and alignment with EUCF objectives.

Implementation: The selected applicants sign a Grant Agreement with the coordinator of EUCF. The grant amount will be disbursed as follows: pre-financing of 70% of the total amount at the Grant Agreement signature; final payment of 30% of the total amount after positive validation of the investment concept.
Beneficiaries develop their investment concept within twelve months. They can follow capacity building sessions and are supported by country experts providing technical assistance.
At the end of the project time, beneficiaries are encouraged to implement their investment concept and supported in doing so (capacity building sessions, matchmaking events, communities of practice, EUCF Helpdesk).

2.4.3. Barriers & best practices identified

Best Practices: The EUCF aims at bridging the gap between the existing funding streams and the cities' projects. By providing capacity building and financial knowledge to cities, it aims at joining the world of finance and cities which are not used to work together. The format of the Facility allows cities to be proactive in preparing project funding while funds for the implementation are not yet secured, and to have more time to develop the investment concept without being pressured by deadlines for funding applications.
The facility is in general appreciated by cities as the application process is relatively light and the capacity building sessions and the national expert are helping during the development of the investment

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concept and its implementation. The EUCF does not represent a big risk for the city budget. It is often used to prepare other application to another facility such as ELENA.

Barriers: Within the application process, it can be something difficult for cities to obtain the political document as it requires interservice coordination, time and commitment of elected bodies. Despite the country experts, language is still an important barrier as the application must be written in English, also some cities have to engaged consultants and translators.
Despite that the EUCF has been designed for medium and small cities, big cities are also applying, and smaller cities face a hard competition.

2.5. City Finance Lab

2.5.1. Description

The City Finance Lab provides technical assistance to project developers and gathers bankable urban mitigation and adaptation projects.

Lead: EIT, Climate KIC, South pole

Scope: Renewable Energy, Water, Sanitation, and Waste, Transportation/Mobility, Low Carbon Technology (ITC/Open Data), Urban Public and Green Space, Energy Efficiency, Land Use and Nature-based Solutions, Adaptation and Resilience. Only European based entities can benefit from it.

Size: Projects must be between EUR 50,000 to EUR 75,000.

2.5.2. Procurement process and implementation

Procurement process: Proposals can be submitted directly on the city finance lab website when the calls are open. The proposal is in the first stage composed of a 500 words proposal pitch. The selection is made by an independent committee on the following criteria: relevance, innovative and transformative aspects, ambition to become financially sustainable, feasibility. Calls for projects are opened by period when the lab has the resources and considers it appropriate and are announced on the website.

Implementation: Selected projects can benefit from expert analysis and guidance to strengthen the design of the project, find partners, and attract investors. Beneficiaries implement their innovative solution mobilising private and/or public capital supported by technical advisors.
The City Finance Lab aims at replicating and scaling the solutions successfully implemented by providing capacity building and knowledge sharing to other cities.

2.6. Global platform for sustainable cities (GPSC)

2.6.1. Description

The Global Platform for Sustainable Cities (GPSC) works with practitioners and thought leaders from around the world to develop solutions for sustainable urban growth. Together, the partner cities can advance toward their visions and goals of being cities that are competitive, inclusive, and resilient.

Lead: Led by the Word Bank, the GPSC was funded by the Global Environment Facility (GEF). It is a trust fund established on the eve of the Rio Earth Summit. The Global Platform for Sustainable Cities (GPSC) comprises approximately 30 cities and a range of knowledge partners.

Scope: Transit-Oriented Development (TOD) across domains from Climate Neutrality, Biodiversity, Energy, Transport, Green and Blue Infrastructure and others

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Size: Since the Rio Earth Summit, it has provided more than $21.7 billion in grants and mobilized an additional $119 billion in co-financing for more than 5,000 projects and programs.

2.6.2. Procurement and implementation process

Procurement process: N.A.

Implementation: The platform's initiatives have three pillars to support of urban sustainability: sustainability indicators, integrated urban planning, municipal finance.

Sustainability indicators: the GPSC developed the Urban Sustainability Framework (USF) and its 4-Stage Approach and Indicator Measuring Framework to help cities understand their urban sustainability status, define their vision, and formulate and implement an action plan. The USF encourages cities to assess their urban sustainability and compare themselves with their peers. GPSC has initiated a benchmarking process using the six dimensions of the USF with a goal of understanding where each of the cities currently stands in terms of sustainability. GPSC emphasizes the importance of informing strategic planning processes with robust data and provides guidance to cities on how to improve data collection and management.

Municipal finance: the GPSC emphasizes the importance of cities' fiscal sustainability and builds upon the platform's focus on linking technical assistance to financing. To promote a fiscally enabling environment through its municipal finance pillar, the GPSC helps cities assess their fiscal sustainability and creditworthiness, develop revenue improvement strategies and climate-smart capital investment plans, identify market-based options to finance infrastructure investment plans, and harness private sector investment for project financing and scaling.

2.7. Making Cities Resilient Campaign and MCR2030

2.7.1. Description

Making Cities Resilient 2030 (MCR2030) is a unique cross-stakeholder initiative for improving local resilience through advocacy, sharing knowledge and experiences. It establishes mutually reinforcing city-to-city learning networks, injecting technical expertise, connecting multiple layers of government and building partnerships.

Lead: The UN convenes the global and regional organisation that form the core group of partners. The Core Partners include C40 Cities, ICLEI – Local Governments for Sustainability, International Federation of Red Cross and Red Crescent Societies (IFRC), Japan International Cooperation Agency (JICA), Resilient Cities Network (R-Cities), United Cities and Local Governments (UCLG), United Nations Human Settlements Programme (UN-HABITAT), United Nations Office for Disaster Risk Reduction (UNDRR), United Nations Office for Project Services (UNOPS), The World Bank Group, and the World Council on City Data (WCCD).

Scope: Climate change adaptation, Resilience, risk reduction.

Size: Between 2010 and 2020, over 4,360 cities have signed up to the MCR Campaign and adopted the Ten Essentials for Making Cities Resilient. The Core Partners, the Global Coordinating Committee (GCC), and the MCR2030 Global Secretariat, negotiate the implementation and delivery strategy. MCR2030 also supports cities at the regional level across Africa, Asia, the Arab States, the Caribbean, and Europe.

2.7.2. Procurement process and implementation

Procurement process: MCR2030 highlights three stages along the resilience roadmap, from gaining knowledge, to planning, to implementation. To join MCR2030, cities should take the stage assessment

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and get the letter of commitment for their stage signed by their mayor. Previous participants in the MCR Campaign (2010 to 2020) and local governments certified with ISO37123 should take the stage assessment but are not required to submit a signed letter in order to join.

MCR2030 supports cities by providing access to finance for supporting DRR, climate change adaptation and implement resilience initiatives. MCR2030 provides opportunities for cities to be connected with funding streams and innovative financing tools and enhancing capacities to access resilience financing. It also strengthens local governments' capacity to develop bankable projects for financing key DRR and resilience actions. Programmes such as Financing Sustainable Cities Initiative (FSCI), C40 Cities Finance Facility (CFF), Transformative Action Program, and the City Resilience Programme are used to support these initiatives.

Implementation: Upon joining the MCR2030, cities commit to certain actions depending on their stage. Cities can progress onto the next stage as their needs and commitments to MCR2030 evolve over time and as they reach the milestones. The goal of MCR2030 is to move cities to Stage C, where they have mainstreamed DRR/resilience, and focus on monitoring and evaluation, to ensure they maintain the level of resilience achieved. All cities that sign-up to MCR2030 will receive a certificate of commitment. Their certificate can be downloaded from the MCR2030 dashboard.

2.7.3. Barriers & best practices identified

Best practice: A study has shown that MCR cities have reduced disaster risks at the local level compared to non-MCR cities. These cities understand risks better, communicate them, develop DRR strategies, engage stakeholders and take actions to reduce disaster risks. The MCR campaign could be further promoted to support local governments towards achieving more impact on disaster risk reduction and resilience.

2.8. URBIS

2.8.1. Description

Support type: URBIS was set up to provide technical assistance to urban authorities. It offers tailor-made technical and financial advice to urban authorities and both public and private entities to accelerate and unlock urban investment projects, programmes, and platforms. Its distinctive feature is that it provides an integrated/packaged and place based advisory offer, addressing both city-wide investment planning and financing needs for projects as well as integrated urban development programmes.

Lead: This advisory platform sits in the European Investment Advisory Hub, developed by the European Commission in partnership with the EIB. URBIS has been developed in partnership by the European Commission (DG REGIO) and the EIB in the context of the EU One Stop Shop for Cities and in support of the ambitions defined in the EU Urban Agenda.

Scope: Urbis covers the priority themes of the Urban Agenda: inclusion of migrants and refugees; Jobs and skills in the local economy; Urban poverty; Housing; Circular economy; Air quality; Climate adaptation; Low carbon energy transition; Sustainable use of land and Nature-Based solutions; Urban mobility; Digital transition; Innovative and responsible public procurement.

URBIS offers its service to cities of all sizes from all regions of Europe. It aims to support cities in different stages of the investment programme/ project life cycle. It prioritises cities seeking support related to an integrated sustainable urban strategy, with a view of developing, financing and implementing urban investment programmes.

Size: URBIS has around 36 assignments launched or under way. These were linked to and supported in some way over €4 billion of urban investment in projects and facilities across 17 EU Member States.

This project has received funding from the H2020 Research and Innovation Programme under the grant agreement n°101036519.

2.8.2. Procurement process and implementation

Procurement process: Urban authorities wishing to access the service should first submit a request form, describing the proposed assignment, the project, programme or investment platform that it will support and sets out how the assignment will meet the eligibility criteria set out below. Requests will then be assessed against each of these eligibility criteria before an advisory assignment request is taken forward through URBIS. The following eligibility criteria will be applied:

- Advice should be given on sustainable urban investments, in particular smart, green and socially inclusive investments, with a planning led approach and building on integrated urban strategies
- The assignment should be investment related
- The support should be for or on behalf of urban authorities in an EU Member State
- Advice will be given for integrated urban investment programmes, with a short to medium term time-horizon (3-5 years). Investment programmes typically group several smaller projects together, covering different urban sectors, which could be financed from various/different sources. Ideally investment programmes given support should have an overall (multi-annual) indicative investment target of at least EUR 20 million
- Advice may also be given to stand alone projects of significant size, typically over EUR 20 million

The programme/ project can demonstrate additionality for example by:

- helping to address a capacity gap or funding need, responding to clear public policy goals or suboptimal investment situations; or
- supporting the use of different funding sources; or
- an activity that is replicable in other urban areas

Implementation: Once selected, URBIS can provide various types of support: Increased awareness raising, tailor-made technical and financial advice to cities, exploring innovative financing approaches for city investments

2.8.3. Barriers & best practices identified

Best practices: Urbis has generated a great deal of interest. In fact, cities from all over Europe benefited from its advisory services. The Hub has successfully supported the identification, development, and implementation of projects of different scales across the EU. For instance, Florence received technical assistance to mainstream climate change adaptation, through the implementation of more resilient projects, adapted to the existing climate risks and vulnerabilities.

Urbis also provides support for the development of complex projects, such as the smart cities ones, where there is still a high level of investment risk. For example, in Slovakia, Hungary and in Croatia the Advisory Hub in collaboration with the national promotional banks and institutions, supported the development of smart cities investment platforms, which will provide support to the development and financing of smart cities projects. The platform solution is particularly relevant for smaller or riskier projects, which on their own may have difficulties attracting financing.

Barriers: URBIS requires project packages of at least EUR 20M, which can be challenging for smaller cities that are less likely to have projects of such a big size.

2.9. Smart Cities Marketplace

2.9.1. Description

The Smart Cities Marketplace is an initiative that brings together cities, industry, SMEs, investors, researchers, and other smart city key actors with the main purpose of supporting massive upscaling of smart city solutions. It offers a space where actors can look for inspiration, knowledge-exchange or

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investment. In particular, it offers services and events for both cities and investors on creating and finding bankable smart city proposals by using the Investor Network and publishing calls for projects. The Investor Network, comprised of investors and facilitators who are actively looking for smart cities' projects, enables cities to get in contact with financial institutions to discuss the financing of their project.

Lead: European Commission (Directorate-General for Energy)

Scope: The Smart Cities Marketplace offers knowledge to support cities in moving their smart city ambitions forward in the following areas: buildings, energy carriers and systems, mobility, information and communication technology.

Size: To date, 124 bankable project proposals were received, EUR 585.3 million were matched with investor interest and the network now counts with 17 investors.

2.9.2. Procurement process and implementation

Procurement process: This initiative offers online deal and matchmaking meetings with investors of the Smart Cities Marketplace investor network. Also, as there is no maximum budget, the facility does not work with a call for project system but rather a simple application. The initiative does not have a call period but is continuously looking for projects. Cities can submit their project concepts via an intake form. This applies to cities that are ready to redevelop certain areas or that have a project concept that is mature enough to be pitched to an investor. The facility proposes a project maturity level model to assess project ideas (with level 1 being potential project identified to level 6 being investment offer or tendering requirement created), and favours project concepts that are at level 3 or higher.

Implementation: After completing and submitting the form, the matchmaking team verifies the submission and if the proposal is ready and clear, submits the project concept to those investors whose investment strategy is matching the type of project submitted. Once an investor is interested to learn more about the project, the matchmaking team puts the city in touch for a 1:1 conversation with the investor.

2.9.3. Barriers & best practices identified

Levers: Projects integrated in a city vision are easier to finance. Projects that are aligned with the city vision have proven to be more attractive to investors. This is because it can show that the project can stand beyond political cycles.

As the facility does not have a call for projects logic, when applicants 'fail' the application process or are not matched with investors, they can reshape their project ideas thanks to the support offered by the facility and reapply later on.

Barriers: Some cities have identified a number of obstacles associated to the Smart Cities Marketplace. Hereunder is a summary of the main obstacles faced by city officials to making the most of the Marketplace and finding investment.

Gap between cities and investors: Several less-advanced cities do not have investment plans and as a result, struggle to find investors. Whereas those who are advanced, do not have the need to pass through the matchmaking facility offered by the Marketplace, as they have easy and/or direct access to funds. Furthermore, those local authorities whose projects are mature / preparations are advanced, very often have already selected the financing source. They would not have time to wait for such initiatives when their project is almost ready to be launched. In some countries, it is rare that local authorities would prepare projects proactively, when a source of funding/financing is not available yet. They would prefer not to invest resources into feasibility studies if they do not see high chances of being able to obtain funding.

Lack of dissemination: The lack of dissemination and communication around the opportunities offered by the Marketplace has affected the number of users. For instance, some cities in Eastern Europe reported that they did not know about these matchmaking opportunities. This is correlated to the

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language barrier. Since the information was not translated to other languages, it did not arrive to countries where English is less used.

Scepticism around private investment: Many cities prefer subsidies or other finance means over private investors. Cities do not always trust and are often afraid of working with private investors. In that sense, the tools and benefits of working with private investors could be better promoted, for example by sharing good examples through city networks, ministries, among others.

2.10. LIFE Technical Assistance projects

2.10.1. Description

The LIFE programme includes different calls for technical assistance. In particular:

Technical support to develop clean energy transition plans and strategies in municipalities and regions (LIFE-2021-CET LOCAL). This has found some current EU projects as PROSPECT, Decarb City Pipes 2050, Tomorrow, MPower etc.

Projects for the preparation of Strategic Integrated Projects (SIPs) and Strategic Nature Projects (SNAPs) (LIFE-2021-TA-PP). This call aims at supporting applicants in the development of projects that participate in the implementation of EU policy requirements for Member States regarding environmental, climate or energy legislation and objectives.

The Disruptive PDA (LIFE-2021-CET-PDA): technical Assistance to advance market boundaries for sustainable energy investments. It aims at supporting project developers in regional and local authorities to undertake energy efficiency and renewable energy investments of ambition and scale.

Lead: LIFE Programme for Environment and climate action, managed by CINEA.

Scope: According to the call.

Size: According to the call:

LIFE-2021-CET-PDA : Grant from EUR 0.5 million to EUR 2 million. Overall budget for 2021: EUR 6 million. The expected leverage factor is 1:15

LIFE-2021-TA-PP : EUR 807 882 dispatched between the topic (Climate, environment or nature). Maximum contribution EUR 70 000.

LIFE-2021-CET-LOCAL : overall budget EUR 7 million. Maximum contribution EUR 1.75 million.

2.10.2. Procurement process and implementation

Procurement process: As all LIFE calls, the proposal should be submitted online in the electronical portal. It should include different forms and annexes (administrative information, budget, technical description, project data). The proposal is about 70 pages. Once submitted ahead of the deadline, the proposal is evaluated by a committee with a scoring system based on 4 criteria : relevance, impact, quality, resources. If selected, the local authority will be informed 4 to 5 months after submission and will prepare and sign a grant agreement with CINEA about 3 months after.

Implementation: After the grant signature, the beneficiaries start the implementation of the project. They receive a prefinancing to start working on the project (float of normally 30% of the maximum grant amount; exceptionally less or no prefinancing). Other prefinancing are possible and the rest will be perceived at the end of the project. Along the project, the beneficiaries must submit milestones and reports.

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2.10.3. Barriers & best practices identified

Barriers: LIFE calls are perceived as complex but also crucial for cities. The process is relatively demanding and the single-stage procedure, with no dialogue between applicants and CINEA, prevent any improvement of the application. This can generate frustration and deception when failing. Local authorities are often very limited in leading consortium regarding their staff capacity as creating and coordinating a consortium is very time consuming.

Levers: The technical assistance calls are existing for years and have proven very good results. As other LIFE call, having a working and skilled consortium of different partners is key. The online submission platform offers a space to find potential partners to draft a common application. City networks also organise match making sessions to create consortium.

2.11. European Energy Efficiency Fund Technical Assistance (EEEF)

2.11.1. Description

The EEEF seeks to facilitate the provision of market-based financing for cost-effective public sector energy efficiency, clean urban transport and renewable energy projects related to public sector activities in the EU. A part of the Fund is dedicated to project development services (technical assistance). Within this facility, local authorities can use the consultants' services (selected by the EEEF) to plan investment programmes (for example for feasibility studies, energy audits and evaluating the economic viability of investments, legal support) in order to finance their sustainable energy plans.

Lead: EEEF

Scope: Energy efficiency, small-scale renewable energy and/or public urban transport

Size: Project need to be between EUR 5 and 25 million. The leverage factor is 1:20.

2.11.2. Procurement process and implementation

Procurement process: The process works with a first come-first-serve rule and is subjected the availability and interest of the Fund at the moment. Applicants send the initial proposal to the EEEF technical assistance team and are guided during the application process. The proposal is then evaluated according to precise criteria and the applicants are informed very shortly (20 days) about the results. If successful, the applicants have to sign a technical assistance (TA) contract.

Implementation: the beneficiaries have a 2-year time period to accomplish the tasks detailed in their TA contract, using the services of the EEEF consultants.

2.11.3. Barriers & best practices identified

Good practices: The EEEF Technical Facility covers the staff cost of the beneficiaries during the grant. The services proposed are very tailored made and the consultants support allow to deliver results much quicker than in other technical assistance facilities.
Participants underline the need to cluster multiple small towns and municipalities when applying for the funds to better estimate the financial risks and lower the administrative barriers.

Barriers: The availability of the TA facility is limited. Currently 8 municipalities are supported.

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2.12. European Assistance for Innovation Procurement (EAFIP)

2.12.1. Description

Support type: The European Assistance for Innovation Procurement (EAFIP) initiative provides technical and legal assistance by supporting public procurers across Europe in developing and implementing innovation procurement. In other words, EAFIP helps to build the capacity of procurers. The exact scope and content of the assistance to be provided to the selected procurers is determined on a case-by-case basis.

Lead: The EAFIP-initiative was launched by the European Commission Directorate General for Communications Networks, Content & Technology (DG CONNECT). In 2015 – 2018 it was implemented by the two consortium partners STELLA Consulting and Corvers Procurement Services. From 2019, Corvers is the main contractor for the EAFIP initiative.

Scope: This initiative targets new projects that aim to procure innovative ICT-based solutions. The EAFIP seeks applications of public procurers from all EU Member States to support the implementation of Pre-Commercial Procurement (PCP) and Procurement of Innovative Solution (PPI). These may include Green Deal projects; projects on Blockchain, Artificial Intelligence, Cybersecurity; and projects under national digital/ICT strategies. EAFIP also welcomes project applications on ICT solutions aimed to tackle COVID-19 or similar crises through innovation procurement.

Size: Since the start in 2015 EAFIP organised 12 successful events, created a knowledge-packed toolkit and 12 informative videos, and provided assistance to public procurers in the development and implementation of their innovation procurement. Moreover, around 25 innovation procurements of high impact ICT-related solutions were supported through EAFIP up to present. During 2021-2022 new projects that aim to procure innovative ICT-based solutions get the opportunity to apply for free assistance.

2.12.2. Procurement process and implementation

Procurement process: new calls to apply for free assistance will be published every three months. All public procurers from EU member states are eligible to apply for assistance. The public procurers to receive this assistance are chosen through a selection procedure against the following criteria:

- Concrete interest / commitment in starting a PCP/PPI project and maturity of the business case
- Potential impact of the PCP/PPI procurement, with priority to high impact ICT solutions, innovative ICT solutions contributing to economic recovery, the European Green Deal and national digital/ICT strategies.
- Geographical balance of the cases to be assisted across the EU member states.
- Lack of experience and existence of prior cases in the implementation of PCP/PPI under the legal system of the country in question.

The selection of the procurers to receive assistance is carried out together with the European Commission Services on the basis of interest shown via an online questionnaire. All expressions of interest received via this online questionnaire are assessed according to the above criteria, based on the information provided in the questionnaire.

Implementation: EAFIP provides local assistance to selected public procurers in the preparation and implementation of a PCP or PPI procurement, covering:

- Scoping an identified procurement need that can be tackled with innovative solutions
- Preparing and conducting an EU wide published open market consultation
- Drafting tendering documents
- Launching an EU wide published call for tender

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- Answering questions from potential tenderers at any time during the process
- Signature of contracts with selected vendor(s), taking into account the relevant provisions under European and national legislation governing public procurement.

The exact scope and content of the assistance to be provided to the selected procurers is determined on a case-by-case basis. Assistance includes one-to-one meetings, support by email, hands-on guidance and individual support (including legal support) to prepare and implement a PCP or a PPI procurement. The assistance provided within the EAFIP-initiative does not consist of financial support for activities carried out by the procurer.
Each project selected for assistance benefits from a total of 5 person-days expert assistance that are provided free of charge to the procurer by EAFIP and that are evaluated on a case-by-case basis. Local assistance is provided in the local language of the procurer through the EAFIP Network of Experts established across all the EU Member States.

2.12.3. Barriers & best practices identified

Barriers: The percentage of cities that have received EAFIP assistance for their projects is relatively small (around 12%). This includes not only city councils, but also agencies.

2.13. The Joint Assistance to Support Projects in European Regions (JASPERS)

2.13.1. Description

Support type: The Joint Assistance to Support Projects in European Regions (JASPERS) provides technical assistance to public authorities and project promoters. It helps cities and regions to absorb European funds for high-quality projects. In particular, it provides advisory support in the development of strategies and project pipelines, project preparation and appraisal, and technical capacity-building.

Lead: European Commission and the European Investment Bank.

Scope: JASPERS focuses on the shift to climate-neutral and environment-friendly urban planning and innovation, and on projects integrating transport, environment, energy, health, education and information technology dimensions.

Size: Since its creation in 2006, JASPERS has provided support across two programming periods (2007–2013 and 2014–2020) and prepare its next programme 2021 – 2027. The number of beneficiaries and the scope of assistance have steadily increased.
Between 2006 and 2020, JASPERS supported 2 245 projects, with an estimated investment cost of 275.2 billion EUR, and the European Commission approved 939 JASPERS-assisted major projects across all mandates, with a total investment cost of 218.1 billion EUR and a grant amount of EUR 117.9 billion.
In the 2021–2027 programming period, JASPERS will scale up assistance to transport projects under the Connecting Europe Facility (CEF) mandate. JASPERS will also contribute to URBIS. Moreover, JASPERS' advisory function will continue to cover all aspects of project development, horizontal issues relevant to more than one project or country, and other project-related matters such as implementation support and capacity building. JASPERS will also cooperate with national authorities to assist them in producing project proposals that meet EU requirements, and in identifying potential projects for assistance. Moreover, in the 2021-27 programming period, JASPERS' advisory budget will come from different funding streams: the Cohesion Fund, the European Regional Development Fund, the Just Transition Fund, CEF and IPA (Instrument for Pre-Accession Assistance).

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2.13.2. Procurement process and implementation

Procurement process and implementation: JASPERS operates based on action plans prepared through cooperation with the beneficiary country and the European Commission. These plans list the investment projects that JASPERS may assist through individual assignments.

A managing authority acts as the central coordinator for each country and requests assistance from JASPERS. This person also provides information on the programme, selects projects and monitors implementation. The experts work in close cooperation with the beneficiary, managing authority and relevant intermediate bodies. Member States or Enlargement Countries remain the owners of the projects.

JASPERS assistance is free of charge for local authorities and promoters. Local authorities that are interested in JASPERS assistance can call or email one of its offices, which can be found on the JASPERS website.

2.13.3. Barriers & best practices identified

Best practices: The JASPERS website provides examples of projects by theme, by country supported under the JASPERS programme. Transport is the sector with more actions supported. Poland (399) and Romania (454) are the countries that received assistance to more projects.

Barriers: JASPERS' targets assistance on infrastructure projects which are defined as "major" and high-quality projects, e.g. energy, urban transport, roads, water, waste projects. In small countries where there are not many projects of this size, JASPERS concentrates on the largest projects. Despite these efforts, this poses big challenges for smaller cities, which often have smaller budgets and less resources and skilled staff.

2.14. The City Climate Finance Gap Fund

2.14.1. Description

The City Climate Finance Gap Fund, (the Gap Fund) provides a range of technical assistance and capacity building to support climate-smart planning and investment in cities in developing and emerging countries.

Support type: The Gap Fund provides city planners with technical assistance and tools to enhance cities' low-carbon planning and resilience efforts to address urban sprawling growth. It also helps city leaders build a pipeline of climate-smart urban investments, with a focus on early stages of project preparation. Cities are put in touch with prospective financing partners, such as the World Bank or EIB lending, or third-party financiers.

Lead: The Gap Fund demonstrates a unique collaborative model, with funding from Germany and Luxembourg, it is co-implemented by the World Bank and the European Investment Bank in partnership with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and works directly with city groups and networks including GCOM, ICLEI, C40 and CCFLA.

Scope: Proposals must have an urban focus and the potential to make a significant impact on climate change mitigation and/or adaptation. Projects include nature-based solutions and green areas, urban mobility, electrical energy, and small renewables including building retrofits, street lighting, district cooling and heating, solid waste and wastewater, circular economy, eco-district approaches including for slum upgrades.

Size: The Fund is capitalized at EUR 55 million, with a target capitalization of at least EUR 100 million and the potential to unlock an estimated EUR 4 billion in investments. The Gap Fund has received more than 140 expressions of interests and approved technical assistance across 33 cities. An additional 30

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cities are currently undergoing a detailed assessment for potential Gap Fund support, with a total target of at least 180 cities.

2.14.2. Procurement process and implementation

Procurement process: Cities, of developing or emerging countries eligible to receive official development assistance, as defined by the OECD's Development Assistance Committee, can apply for Gap Fund support.

Applicants can submit an expression of interest on a rolling basis. If not shortlisted, and consent is given by the applicant in the EOI, the Gap Fund Secretariat will share the application with other Gap Fund partners. The Gap Fund Secretariat then assesses the projects to determine the expected climate, environmental, social and economic benefits. It also examines the scalability, replication potential, bankability and to what extent the projects aligns with local and national government commitments. The Secretariat then approves the projects.

Implementation: The Gap Fund intervenes during the early stage of project preparation, when cities often lack the capacity and financial resources required to turn ideas into real projects. Intervening at the early stages is the most effective way to help shift urban investment towards climate-smart projects.

2.14.3. Barriers & best practices identified

Best practice: The Gap Fund is currently working with cities around the world. It has helped to integrate low-carbon and climate-resilient considerations into the planning, development and construction of affordable and green housing. It is also providing technical assistance for the development of solid waste management and action plans for improving and financing low-carbon solid waste management services. The strategic plans and projects supported by the Gap Fund can be a blueprint for scaled-up urban climate action through replication in other cities within and across countries.

The Gap Fund also contributes cutting-edge knowledge, tools and recommendations. For example, a report authored by the World Bank, provides critical systems-level conceptual frameworks and recommendations for city, country and climate decision-makers. The World Bank also developed user-friendly practical tools and notes for operational practitioners and project developers on the ground.

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3. Funding the ambition of Net Zero Cities

This section outlines the main funding programmes and instruments (i.e. non repayable capital) available for city stakeholders to fund project implementation. It includes both EU funding programmes as well as instruments, such as taxes, fees, rents, collected directly from private actors. Some grant funding is channeled to city stakeholders directly through national or regional institutions, rather than local public administration, but this varies according to the country specific legislation.

3.1. EU Funding Programmes

In 2020, the European Union provided a **stimulus package worth EUR 2.018 trillion** (in current prices) as a response to the COVID-19 crisis. It consists of the EU's long-term budget for 2021 to 2027 of EUR 1.211 trillion, together with EUR 806.9 through NextGenerationEU, a temporary instrument to power the recovery. Both instruments are the largest stimulus package ever financed in Europe focused on becoming a greener, more digital, and more resilient Europe.
According to the European Council, 30% from the EU's budget for 2021-2027 and the recovery instrument Next Generation EU will be spent on climate action, representing around EUR 600 billion.

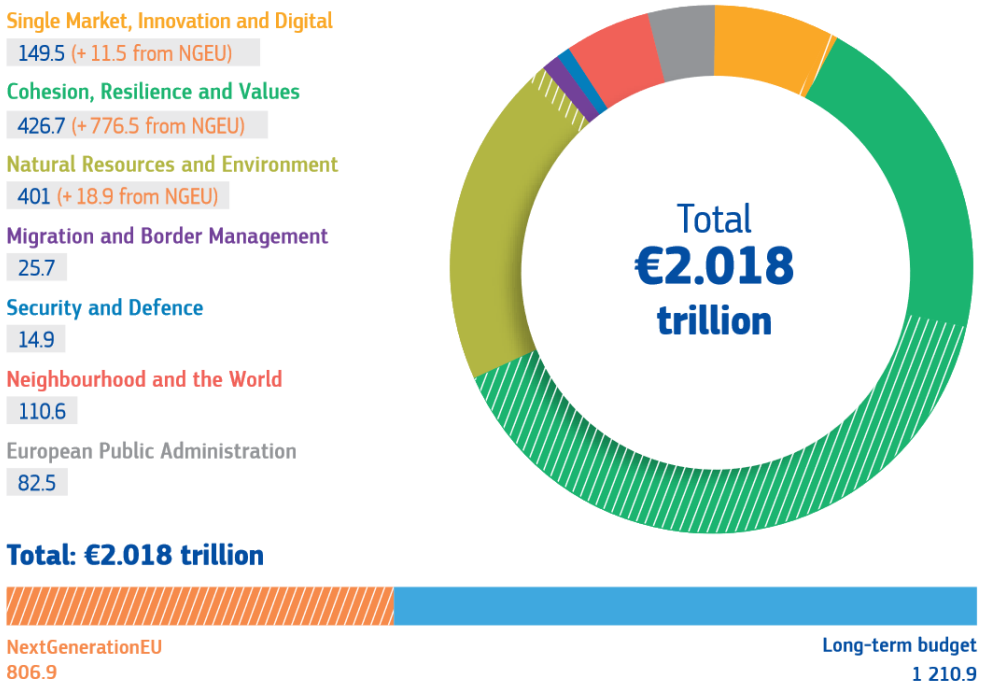

Figure 1: Repartition by scope of the Next Generation and EU Long-term budget

Source: European Commission, 2021

3.1.1. Multiannual Financial Framework (MFF)

The Multiannual Financial Framework is the EU's long-term budget for the next 7 years, sets limits on its spending and secures its political priorities, like digitalisation and green deal.

The 2021–2027 MFF, of EUR 1.211 trillion, seeks to support the recovery and covers seven spending areas. It provides the framework for financing nearly 40 EU spending programs over the next seven years. The programmes included in the MFF 2021-2027 related to climate neutrality and climate action are listed and described below.

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3.1.2. NextGenerationEU

With a budget of EUR 806.9 billion, NextGenerationEU aims to help repair the immediate economic and social damage caused by the coronavirus pandemic.

The **Recovery and Resilience Facility (RRF)** is the centrepiece of NextGenerationEU, a temporary recovery instrument that allows the European Commission to raise funds. The Facility is also closely aligned with the European Commission's priorities ensuring a sustainable and inclusive recovery that promotes the green and digital transitions. The RRF serves as an instrument for providing grants and loans to support reforms and investments in the EU Member States at a total value of **EUR 723.8 billion** (EUR 338.0 billion in grants and EUR 385.8 billion in loans from the EU to individual Member States on favourable conditions).

The funds under the RRF will be distributed according to national recovery and resilience plans prepared by each Member State, in cooperation with the European Commission, and in line with an agreed allocation key. Each Member State sets outs in the plan their reforms and investments. They also decide **how the funding is distributed and if cities can get direct access to it or not**. According to a joint study by the European Committee of the Regions, many Member States excluded cities and regions from the preparation of the recovery plans; only a few took on board local-regional authorities' input to the process (European Committee of the Regions, 2021) .

The European Commission assesses the national plans against the targets of 37% of expenditure for climate investments and 20% of expenditure to foster the digital transition. According to the European Commission, Member States allocated in their national plans **around 40% of the spending to climate measures.**

In addition, NextGenerationEU reinforces several existing EU programmes and policies: the REACTEU, the Just Transition Fund, the European Agricultural Fund for Rural Development, the InvestEU, the rescEU and Horizon Europe.

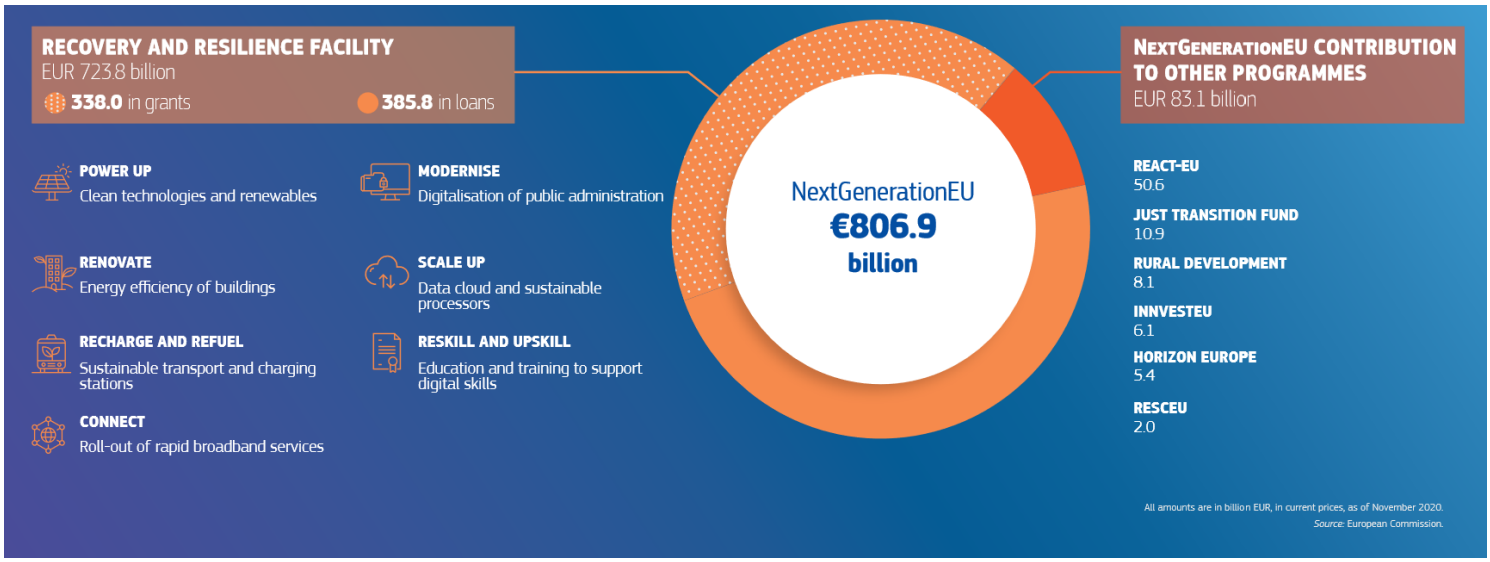

Figure 2 : key features of Next Generation EU
Source: European Commission, 2021

3.1.3. React-EU

With a budget of **EUR 50.62 billion** (from NextGenerationEU), the programme supports investment projects that **contribute to a green, digital and resilient recovery of the economy**, including support for job creation, maintaining jobs, youth employment measures, short-time work schemes, support for SME and support for the self-employed. The programme is delivered through shared management and

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funding is disbursed in the form of grants, procurements and financial instruments. The recipients are public authorities in the Member States.

3.1.4. Just Transition Fund

With a budget of **EUR 19.32 billion** (56% of which under NextGenerationEU) for the 2021-2027 period, the fund provides **tailored support to the territories that will be most affected by the transition towards climate neutrality**. The fund is implemented under shared management. The European Commission provides grants to the Member States according to their territorial just transition plans in which eligible territories (those expected to be the most negatively impacted by the green transition) are identified. Funding is disbursed in the form of grants, procurements and financial instruments, and it is opened to national and local authorities and businesses and start-ups from eligible territories.

3.1.5. Horizon Europe

Horizon Europe is the EU framework programme for research and innovation. With a budget of EUR 95.5 billion (5.4 billion of which under NextGenerationEU), it **promotes research and innovation projects** tackling societal challenges focusing on **EU industrial leadership, recovery and the green and digital transitions** (e.g. high-performance computing, artificial intelligence, data and robotics, batteries, smart cities, cancer and rare diseases, carbon-neutral and circular industry, blue economy, etc.).

The programme is implemented directly by the European Commission or through funding bodies and provides funding in the form of grants, prizes, procurement and financial instruments. Cities can participate in the Horizon Europe programme.

3.1.6. InvestEU

The InvestEU programme, with a budget of **EUR 10.28 billion**, is expected to mobilise at least EUR 372 billion in additional investment between 2021-27. The programme supports investments in 4 main areas: **sustainable infrastructure, research, innovation and digitisation; small and medium-sized enterprises; and social investment** and skills.

The funds are allocated under the indirect management scheme through the European Investment Bank and the other implementing partners. The programme may provide funding in the form of grants and loans. The eligible final recipients can be natural or legal persons established in an EU country or in a Third Eligible Country, including, among others, public sector entities or mixed entities (i.e. PPP or private companies with a public purpose).

3.1.7. Connecting Europe Facility (CEF)

The CEF, with a budget of **EUR 20.71 billion** for the 2021-2027 period, contributes to the targets for the European Green Deal by giving **support to the green and digital transitions related to the trans-European networks.** More specifically, it provides financial support to infrastructure investments through 3 different programmes sector: energy, transport and digital. The CEF is implemented under a direct management by executive agencies through a mix of grants, procurements and financial instruments. The CEF recipients are public and private entities established in a Member State (or in a non-EU country associated with the programme), SME and research organisations.

3.1.8. Other EU funding programmes related to net zero emissions

Technical Support Instrument (TSI)

The TSI is the main EU funding programme providing technical support to EU Member States to support them in their reform agendas. This includes different areas but a special relevance is given to **actions that foster the digital and green transitions (climate action, circular economy and energy**

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transition). As part of NextGenerationEU (NextGenEU), it can also be used by Member States for the development and implementation of their Recovery and Resilience plans.

The TSI takes over from the Structural Reform Support Programme (SRSP) with an increased budget of EUR 864.4 million for the period 2021-2027.

The recipients are EU Member States. The instrument is implemented under direct management by the European Commission and under indirect management by entrusting tasks to international organisations and other bodies. Funds are disbursed in the form of grants and procurements.

European Structural and Investment Funds (ESIF)

The purpose of these funds is to invest in job creation and a **sustainable and healthy European economy and environment**. They are jointly managed by the European Commission and the EU countries.

In general, the overarching priorities for the Structural Funds are set at the EU level in the Community Strategic Guidelines (CSG) (which sets the framework for all actions that can be taken using the funds) and then transformed into national priorities by the member states through their National Strategic Reference Framework (NSRF) (which sets out the priorities for the respective member state, taking specific national policies into account). Finally, Operational Programmes for each region within the member state are drawn up in accordance with the respective NSRF, reflecting the needs of individual regions.

There are 7 European structural and investment funds:

- ERDF: European Regional Development Fund
- ESF+: European Social Fund Plus
- CF: Cohesion Fund
- EMFF: European Maritime and Fisheries Fund
- AMIF: Asylum and Migration Fund
- ISF: Internal Security Fund
- BMVI: Border Management and Visa Instrument

The main funds (ERDF, CF and ESF+) represent almost one third of all the EU long-term budget for 2021-2027. The ESIF funds considering climate action are listed and described below:

- **European regional development fund (ERDF):** The European Regional Development Fund aims to strengthen economic and social cohesion in the European Union by correcting imbalances between its regions. The ERDF focuses its investments on several key priority areas including innovation and research, the digital transition, small and medium-sized enterprises, and the **environment and the net-zero carbon economy**.

  The ERDF, with a budget of EUR 226.05 billion for the 2021-2027 period, is delivered through shared management. The co-legislators establish the legal framework and the overall funding and determine the allocations by Member State and category of region. The Commission adopts the operational programmes and cooperates with Member States' administrations on the implementation. Funding is disbursed in the form of grants, procurements and financial instruments.

  The ERDF finances programmes such as: the Urban Innovative Actions (UIA), which provides urban areas across Europe with the support to test innovative solutions in the field of sustainable urban development; the URBACT, a programme aiming to increase the capacity of cities and support the exploitation of good practices thanks to the use

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of city to city cooperation and networks; and the INTERREG EUROPE, which aims to help regional and local governments across Europe to develop and deliver better policy.

- **European social fund Plus (ESF+):** The ESF+ is the EU's main instrument for investing in people, with the aim of building a more social and inclusive EU. The ESF+ supports studies, actions and training aimed at, among others, **developing the skills needed for the digital and green transitions**. With a budget of EUR 99.26 billion for 2021-2027, support under the ESF+ is implemented under shared management and indirect management. Member States and Regions are responsible for the execution of the funds. The final recipients are EU public and private organisations (including cities) and non-governmental organisations. Funding is disbursed in the form of grants, procurements and financial instruments.

- **Cohesion fund (CF):** The Cohesion Fund, with a budget of EUR 48.03 billion for 2021-2027, aims to reduce economic and social disparities and to promote sustainable development. The Cohesion Fund finances **investment projects related to the environment and the trans-European transport networks** (TEN-T). Indeed, 37% of the overall financial allocation of the Cohesion Fund are expected to contribute to climate objectives. It is aimed at EU countries whose gross national income (GNI) per inhabitant is less than 90% of the EU average. This means public and regional authorities in the following Member States: Bulgaria, Czechia, Estonia, Greece, Croatia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Romania, Slovenia and Slovakia. The Cohesion Fund is delivered through shared management.

- **European maritime and fisheries, and aquaculture fund (EMFAF):** the fund aims at facilitating the sustainable use and management of marine resources, the development of a resilient blue economy, and international cooperation towards healthy, safe and sustainably managed oceans. The EFMAF supports, among others, projects that facilitate the **transition to sustainable and low-carbon fishing**. It reaches a budget of EUR 6.11 billion for the 2021-2027 period, 87% of which is implemented under shared management and 13 % is implemented under direct management. Funding is disbursed in the form of grants and procurements. The recipients of the fund are stakeholders involved in the exploitation and management of marine resources (public authorities, fishers, aquaculture farmers, coastal communities, civil society organisations and marine scientists).

Thus, many funds are provided by the European Union to finance climate or nature related projects. The main challenge is for cities to access and absorb part of these funds and what instruments are put in place to allow this. Indeed, most of the European funds mentioned above are managed by Member States and are not directly accessible for cities at EU level (with some notable exceptions) and all the more so for hard investments in the implementation of projects. Therefore, the distribution of these fund to the local level depends on the Member States' priorities and functioning and on the requirement of the Fund itself.

3.2. Funding mechanisms

The capital needs for cities to implement a successful transition towards climate neutrality is difficult to estimate. Global estimates range from EUR 4.0 to 4.75 trillion annually. This is distributed across a rough estimate of about 10,000 cities worldwide based on the definition of over 50,000 inhabitants (an additional estimate of the number of larger cities globally shows that around 1280 cities globally will

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have reached a population number of more than 500,000 inhabitants). This puts the climate finance gap per city at EUR 400 million annually on average (not accounting for highly specialized local needs, large differences in population size, etc.)

Estimates for Europe's actual spending on climate finance amount to around EUR 75 billion annually of spending associated with the climate transition in cities, by and large in the key sectors of transport and buildings. Most climate finance goes into mitigation measures, while climate adaptation finance is almost negligible in comparison. This distributes across roughly 900 cities (of over 50,000 inhabitants) in Europe, and comes out at a climate finance flow of around EUR 83 million per city roughly – about a quarter what would need to be spent according to global figures.

The Cities Mission Budget will provide an estimated total of 360 million Euros to cities and associated R&I projects to support mission implementation. This goes to show that, by and large, cities will need to rely on the redirection of public and private investment to pay for climate neutrality transitions, maximise synergies of public spending by increasing the positive climate impact of local projects through alignment with the EU Taxonomy and working with stakeholders to align private investments with climate neutrality targets.

Based on this, local governments and municipalities will need to fulfil multiple roles when it comes to channelling city climate finance flows in the right direction. They need to act both as providers of infrastructure and services (what city stakeholders pay for) and as stewards with their capacity to plan, regulate, convene, and champion (what cities influence). This section focuses on the former category mostly.

Generally, revenue streams of municipalities fall under the following categories but vary in terms of relevance for municipalities across European member states:

Taxes including examples such as property tax, sales tax, franchise taxes, utility tax, admission tax, and transient occupancy taxes to name examples. A big distinction across member states is how much and which types of tax revenue are directly received by municipalities and local governments, compared to national or regional taxes.

Revenue from Use of Funds and Public Property which includes, for example, revenue secured by investing the funds of the city and for rents of city-owned property or other publicly owned assets.

Licenses and permits, which includes revenue derived from the issuance of business permits, etc.

Fines and Forfeitures, which include funds collected by cities based on regulatory or legal offenses or in the form of forfeiture of private assets, including forms such as criminal forfeiture, civil judicial forfeiture, and administrative forfeiture.

Service Fees charged by public entities for public service provision such as green infrastructure provision, fire, police, waste management etc.

National budgets, a substantial amount of municipal funds (but with often stark differences between EU member states) consist of revenue streams directly provided by national, regional or supra-national government levels, based on their respective budgets.

According to OECD data, local government revenue in Europe reached a total of EUR 1,642.4 billion in 2017, by and large (ca. 85%) via tax revenue (37.3%), grants and subsidies (47.4%), and, to a smaller extend, tariffs and fees (13.1%). These average numbers however vary substantially across European jurisdictions. A first factor to consider in understanding these differences lies in observing the numbers of local or municipal governments in a given member state. The same data source for example lists 11054 municipal level governments for Germany, compared to 35357 municipalities in France, but only 391 municipalities in the United Kingdom. This consequently also leads to varying average sizes of municipalities in terms of population, area of jurisdiction, number of higher governmental levels (e.g. as a difference between federal or more centralized states), etc. **The budget of each municipality is therefore inherently linked to the given multi-level governmental structure of each member state and the local dimension of municipalities. These matters have to be taken into account when understanding individual municipal budgets**.

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Secondly, the competencies of municipal governments in terms of direct or indirect revenue generation, as well as the expenditure linked to public service provision vary distinctly as well. Local governments in Spain for example account for 51% of tax revenue, compared to only 14% in Austria, where fees and grants play a more prominent role in comparison. Spending and investment also varies across government levels and sectors or spending category. **Understanding the exact competencies of a governmental entity or entities responsible for a city in regard to revenue generation, public spending and public investment is key to identify the levers available for climate action**. Initiatives publicly funded by a local government responsible for one city via its available budget may be completely out of the scope or competency area in a comparable city of a different member state. Climate Action Plans or Investment plans will have to be created and evaluated with these differences in mind.

All these points are meant to highlight the importance of specific, local and regulatory frameworks that define the action space of cities in regard to funding their climate ambition. Cities, as opposed to municipal or local and regional governments, therefore need to be seen as a locally specific actor system of stakeholders, in which funding from governmental budgets is but one way of providing capital means to climate neutrality. Major mechanisms to increase or optimize funding for climate action in cities include the use of indirect grants from other agencies and levels of government (e.g. EU programs, national grants) or other sources such as philanthropies or corporate social responsibility programs; climate budgeting or eco budgeting as a means to optimize municipal spending in line with sustainability targets and indicators; and sustainable public procurement by mainstreaming sustainability criteria in public procurement exercises.

Grants or subsidies are non-repayable funds disbursed by one party (grant makers), often a government department, corporation, foundation, or trust, to a recipient, often (but not always) a non-profit entity, educational institution, business or an individual. Grants are an important measure for cities to obtain funds in addition to their existing municipal budget for climate neutrality projects, particularly when it is difficult to develop financing schemes with adequate business models, risk profiles and return of investment. Grants are most often provided to both the city administration and private actors (citizens & companies) through national governmental institutions (such as Development banks). National governments can also fund city administration at their discretion. As highlighted earlier in the report, **very few Member States consulted cities in drawing up National Climate Plans**.

One method through which city administration can incentivize green activities in providing grants to private stakeholders is through **Sustainable procurement**. This is an environmental policy mechanism that can ensure that the products and services an organization buys achieve value for money on a life cycle cost basis and generate benefits not only for the organization, but also for the environment, society and the economy. To procure in a sustainable way involves looking beyond short-term needs and considering the longer-term impacts of each purchase. Sustainable procurement is used by both public and private sector organizations to ensure that their purchasing reflects broader goals linked to resource efficiency, climate change, social responsibility and economic resilience. As a lever for climate neutrality, sustainable public procurement means of ensuring direct or indirect or indirect impacts via existing and future operative spending in line with climate neutrality targets.

Apart from sustainable procurement, cities can implement the concept of **climate budgeting** or eco-budgeting is a means of integrating climate and sustainability indicators into budget planning as a non-monetary, impact focused perspective on public spending. It provides the methodological means for cities to optimize the climate impact of their local budget management in line with their climate action plans and 2030 targets. It should be highlighted however that short term operational budgeting is different to long term green investment planning. For a stakeholder driven approach as envisioned by cities applying for the cities mission and implementing Climate City Contracts (CCCs) as an inclusive co-creation exercise, participatory budgeting may be combined with climate investment principles in order to align public spending with wider stakeholder systems and commitments.

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4. Financing the ambition of Net Zero Cities

To achieve climate neutral cities, capital requirements are significant and therefore cities need to be capable and innovative to attract both public and private capital. To this end, official funding programmes advisably need to be complemented with financing from private capital sources. **Although significant funding could be provided to cities through EU funding programmes over the next few years, cities need to be smart in leveraging such funding with private investment capital to achieve net zero**. Hence, this section is dedicated to outline both financing institutions that are of relevance across the EU cities landscape, as well as various existing financing instruments, which could be made use of to mobilize the required capital needed from public and private sources alike. In the last section of this chapter, we have highlighted current barriers identified by cities in sourcing capital towards Net Zero.

4.1. Financing institutions

Financing sustainable cities is a complex challenge and financing institutions (FI) are stepping up to jointly assist cities in mobilizing and accessing the climate finance required to develop sustainability projects. Such involvement sends positive political signals and builds confidence and trust within the private sector, particularly amongst Micro, Small and Medium-sized Enterprises (MSMEs), thereby encouraging them to participate and invest in climate-friendly projects as well. However much still needs to be done to bridge that gap and close the trust between public and private stakeholders.

Multilateral and bilateral FIs are broadly oriented towards national rather than city-level entities but represent an important source of finance for investments relevant to cities, including renewable energy, energy efficiency, water, and transport, where they have taken important steps within their mandates and have developed an increased focus on the financial needs of cities. The urban sector strategies of FIs are often aimed at the macro-economic level, seeking to boost cities' productivity through improved city governance and financial management, access to urban infrastructure and housing, integrated land-use planning, and private sector development. In some cases, these efforts also include dedicated urban climate initiatives.

Furthermore, once plans are in place, cities often need help with feasibility studies and preparation to get projects like bus-rapid transit systems or building efficiency retrofits to a stage where they are "bankable," or financially viable and able to secure financing from third-party sources. However, city governments, which can be good at designing broader city plans, often hit a wall when it comes to creating a pipeline of bankable projects, and at that moment FIs come into action.

Apart from increasingly supporting the city administration in development of bankable projects and providing finance for those, FIs are increasing providing support to the private sector through 'green' capital. **Majority of assets within cities, that pollute the city environment, are owned by the private sector**, **whether it is businesses or citizens**. Instruments such as green mortgages, green bonds, green equity are some of the examples where FIs can incentivize and support the private sector to undertake green activities or to incorporate green components into their existing activities.

4.1.1. European Investment Bank

The European Investment Bank (EIB) is the European Union's bank, owned by the EU Member States, and its role is to fund projects that foster European integration and development. The EIB has been playing a fundamental role in promoting the expansion of the European urban investments, raising substantial funds on capital markets and lending on favourable terms to projects that further EU policy objectives. Of the European Investment Bank's EUR 50-70 billion of annual lending, more than 10% is allocated specifically to urban projects and indirect investment in the urban sector exceeds 40% of its overall portfolio. For more than 50 years, as the EU's main long-term financing arm, the EIB has been an indispensable investor in the urban revival of Europe's cities. In the last three decades especially, the Bank has established itself as Europe's largest investor in urban road, metro, housing, and power projects. These coincided with and contributed to a long, successful, and somewhat unanticipated process of re-urbanisation, urban growth, and urban success across Europe.

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As more attention has been drawn to particular urban development challenges and the need for a multi-level governance approach to address them, the EIB's financial and advisory toolkit has expanded and matured.

First, the EIB has paved the way in developing new city-focused funding tools, such as the **Framework Loan** (FL), which quickly became the most important financial instrument in integrated urban development following its introduction in the 1990s. The framework loan is a line of credit afforded to municipalities that supports the funding of eligible projects in each city's capital programme. The FL's transformative power in terms of European urban development lies in its ability to cover a portfolio of projects across multiple sectors; to authorise a city or region to manage the allocation and disbursement of funds; and to blend national, regional and loan funding as a means of overcoming barriers related to project size.

The EIB has also been fundamental in developing new financial instruments and advisory techniques. As presented in chapter 3, the Bank launched the new "**Urban Investment Support**" (URBIS) initiative in early 2018 to help cities plan and implement their investment strategies.

Furthermore, the EIB has deployed several more instruments to support cities in their sustainable development: **Investment loans,** which are loans dedicated to specific projects (with a life duration of 30/40 years), such as water treatment plant or urban regeneration scheme. Usually, the bank finances or co-finances the investment (on average EUR 100 million), lending to the cities on a long and favorable term; **investment funds** where the EIB can invest equity and provide its financial expertise to blend EU resources and attract private finance as well; and **intermediary lending to national banks**, particularly with the collaboration of promotional banks, such as the Kommunalkredit in Austria, CDC in France, and BGK in Poland, to finance small cities' investments. In 2020, the bank also created a Green Infrastructure team to provide equity finance to infrastructure funds, who then invest in green activities.

4.1.2. The European Bank for Reconstruction and Development

The European Bank for Reconstruction and Development (EBRD) has played a historic role and gained unique expertise in fostering change in target region - and beyond - investing almost EUR 150 billion in a total of more than 6,000 projects.

The EBRD regions are home to vibrant and diverse cities that span across central Europe to Central Asia, the Western Balkans and the southern and eastern Mediterranean region. Cities in the EBRD regions face numerous challenges, including insufficient infrastructure investment, demographic changes, poor air quality and historical legacies of high energy and carbon intensity.

To address these challenges, as mentioned in 3.2.1, EBRD developed the **EBRD Green Cities Framework**, The Green Cities Framework builds on two decades of the EBRD's experience investing in municipal and environmental infrastructure – representing over EUR 6.4 billion investment over 360 projects and delivering 800,000 tonnes of CO2 mitigated annually and combining bankable investments with technical cooperation and policy dialogue. Over the next five years, the GrCF will help at least 10 cities in the EBRD region to plan for and implement comprehensive Green City actions. EBRD can provide finance to city stakeholders through debt, mezzanine debt, equity and guarantees.

Recently, the EBRD has doubled the existing EUR 1.9 billion funding of this pioneering urban sustainability programme, allocating over the next two years a further EUR 2 billion investment in green urban infrastructures.

4.1.3. Municipal and Development Banks

Municipal banks (MBs) are set up essentially as subnational development banks, using their reserves of government public funds to finance infrastructure projects at the local level that would otherwise be too numerous and small for international institutions to efficiently finance directly. A common objective of MBs is to access domestic commercial finance to blend with donor and government finance, with the eventual goal of becoming self-sustaining entities not reliant on further injections of public funds.

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However, most MDBs have struggled to realise this ambition (due to the inability of borrower municipalities to repay private debts) and have remained as specialised institutions for channelling government funding. Some of the most important MBs actively participating in the development of sustainable cities are:

Kommuninvest (Sweden): it is a Swedish Local Government Funding Agency whose purpose is to help municipal governments to raise capital through the issuance of bonds in Europe, Japan and other countries. As a single municipality has little ability to raise capital alone, the Kommuninvest scheme allows many to issue a bond together. As the local governments in Sweden are allowed to alter local taxes when needed, the ability to repay any outstanding debt is close to risk-free, as such the Kommuninvest scheme is rated AAA by both Standard & Poor's and Moody's. This high rating has allowed it to attract investors from around the globe, with roughly US$5billion having been issued in bonds so far.

KommuneKredit (Denmark): The members of KommuneKredit comprise municipalities (kommuner) and regions (regioner) – together local governments – which have loans outstanding or have guaranteed outstanding loans to semi-municipal institutions. Municipalities are the lowest tier of local authority in Denmark in geographic terms and encompass the whole country. Local governments can only borrow for certain purposes not for current expenditures or commercial projects. At all times new loans must comply with the current rules on local government borrowing.

Agence France Locale (France): This French local government funding agency is fully-owned by the French local authorities themselves. Its sole mandate is to distribute attractive loans to French local authorities by raising cost-efficient funds in the capital markets thanks to the pooling of volumes and a robust financial structure. Each member local authority acts as guarantor up to the amount of its total outstanding borrowings with the AFL.

Cassa del Trentino (Italy): This municipal bank groups together numerous small public utility projects of municipalities and other public entities, to structure financial transactions that can generate interest from national and international investors. In addition to reducing the costs of structuring the transaction (a single transaction, rather than as many financial transactions as there are projects), this blended approach allows to have competitive rates.

Nederlandse Waterschapsbank (Netherlands): it is a Dutch specialist financial institution that provides supporting funding for water boards and local government organisations in the Netherlands. It is 100% owned by the Dutch Water boards and provinces. Although a registered bank, it only lends to Dutch government entities and does not provide any services to individuals or companies.

Bank Nederlandse Gemeenten (Netherlands): It is a Dutch bank specialized in providing financing for (semi-)publicly owned organizations. The Dutch state owns 50% of the company, while the remainder is owned by the municipalities and provinces. BNG Bank does not provide financing to private customers, but exclusively to public organizations, such as municipalities, provinces, public utilities, health care organisations and public housing.

Kommunalbanken (Norway): KBN finances important welfare services through providing credit to the local authorities in Norway. It is defined as a state instrumentality, having a public policy mandate from the central government to provide low-cost financing to the Norwegian local government sector. The Norwegian central government exercises its ownership through the Annual General Meeting and appoints members of the Board of Directors and the Supervisory Board.

Municipality Finance plc - MuniFin (Finland): MunFin is one of Finland's largest credit institutions with a balance sheet totalling to EUR 44 billion. The company is owned by Finnish municipalities, the public sector pension fund Keva and the Republic of Finland. MuniFin lends exclusively to Finnish municipalities, their majority-owned companies, joint municipal authorities, and non-profit housing organisations. The funds originate from international capital markets through a worldwide network of institutional partners and financial organisations. The funding is guaranteed by the Municipal Guarantee Board.

KfW (Germany): KfW is the German development bank committed to improving economic, social and environmental living conditions within Germany and across the globe since 1948. KfW is an institution

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under German public law, 80% of which is owned by the German Federal Government, with the remaining 20% owned by the German federal states. Hence, its mandate includes the development at municipal level. KfW provides funding to small- and medium-sized enterprises and start-ups, energy-efficient refurbishment of residential property, equity, and debt capital for Municipalities and to projects in developing countries and emerging economies. To do this, it provided funds totalling EUR 107 billion in 2021 alone. Of this amount, 33% was used for climate and environmental protection.

The Council of Europe Development Bank (CEB): The CEB is a multilateral development bank with an exclusively social mandate, which contributes to the implementation of socially oriented investment projects through several sectoral lines of action. In particular, the CEB is heavily engaged in the "Environmental Sustainability" area, supporting a society that promotes environmental sustainability, mitigates and adapts to climate change and funding projects that can involve the reduction and treatment of solid and liquid waste; clean-up and protection of surface and underground water; energy-saving and efficiency measures; protection and development of biodiversity; and cleaner transport means and networks. CEB finances bankable projects through a range of financing instruments: Project Loans usually finance predefined individual infrastructure investments while Programme Loans are used for funding multi-project programmes, mostly in support of MSME and municipal investment programmes. Besides, while the EU Co-financing Facility (ECF) allows for co-financing and/or ex-ante financing of EU-funded investment activities at the country level, the Public Sector Financing Facility (PFF) covers temporary financing gaps in the public sector and facilitates the continuation of investments and reform programmes. Lastly, the Cross-Sectoral Loan Programme (CSL) responds to the public authorities' social infrastructure needs in several overlapping sectors.

Nordic Investment Fund (NIF): The Nordic Investment Bank is an international financial institution of the Nordic and Baltic countries, whose lending activity aims to support the region's productivity and environment. The Bank's primary source of funding is through the issuance of bonds in the main financial markets globally. Since 2011, NIB has been assessing the climate impact of its financing at the project level and issued green bonds and loans that fund to a large extent investments contributing to climate change mitigation.

4.1.4. Green Infrastructure and Energy Efficiency Funds

The green infrastructure and energy efficiency funds contribute to enhancing energy efficiency and fostering renewable energy in the form of a targeted private–public partnership, primarily through the provision of dedicated financing via direct finance and partnering with financial institutions.
By investing in clean energy and sustainable infrastructure, these institutions facilitate sustainable investments in the public sector, where projects are often hindered or decelerated due to budget restrictions and lack of experience with this kind of investment.
On the targeted impact level, these funds invest at city level in the EU Member States by financing technologies in energy efficiency, small-scale renewable energy, and clean urban transport, with all projects to achieve substantial energy savings or greenhouse gas savings compared to the baseline.

The European Energy Efficiency Fund: The EEEF is an innovative public-private partnership dedicated to mitigating climate change through market-based financing in the member states of the European Union. Municipal, local and regional authorities or public and private entities acting on behalf of those authorities such as utilities, public transportation providers, social housing associations, ESCOs etc. Initial capitalization of the fund amounting to EUR 265m provided by the European Commission, the European Investment Bank, Cassa Depositi e Prestiti and Deutsche Bank. Fund's investments are split into three project categories: "Energy Efficiency", "Renewable Energy", and "Clean Urban Transport".

Green Investment Funds: green Infrastructure Funds are investment funds that manage private investment capital and provide financing through various instruments, including both debt and equity. Examples of such funds include:

Acquila Capital: it is an investment management fund with headquarters in Hamburg, Germany. It was founded in 2001 and focuses on sustainable investments, including renewable energy and green

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logistics, as well as real estate. Aquila Capital manages more than EUR 12.5 billion for institutional investors.

SUSI Partners: this is a Swiss-based green infrastructure fund with an exclusive focus on the wide spectrum of investment opportunities arising from the global energy transition. It invests institutional capital across the energy transition infrastructure spectrum to generate attractive risk-adjusted returns for clients and beneficiaries while contributing to global climate neutrality.

Amber Infrastructure: this is a specialist international investment fund, focused on investment origination, asset management and fund management. With over £8 billion of assets managed, Amber invests in eight countries internationally across its funds and a number of managed accounts. Amber manages the Mayor of London Energy Efficiency Fund.

4.2. Existing and innovative financing and instruments

In this section we look at possible financing opportunities from the private sector.

4.2.1. Capital Markets

Capital Markets are marketplaces for trading funds in the form of financial securities, engaging the users and suppliers of the capital. Capital markets offer better pricing, longer maturities, and provide access to a wider investor base. In comparison to the banks, they can finance riskier projects fostering innovation.

Capital Markets are classified based on the type of instruments used to raise the capital as Debt (borrowed capacity) or Equity (owned capital). Capital markets can raise funds through domestic capital markets as well as international capital markets but not many can access or influence access to the international capital markets. For municipalities in need of capital, the domestic capital markets can complement bank financing. The development of local capital markets can increase access to local currency financing tackling foreign exchange risk and inflation better. Local capital markets creation benefits the governments to easily tap local investors, and often local banks to finance development internally.

Capital Markets however require an enabling environment to access funds from domestic as well international markets to fund public infrastructure. Well- functioning money markets are required to create government bond markets, and they in turn are essential for corporate bond markets. This is a gradual process for which sequencing of enabling policies is essential along with a strong commitment from government authorities in terms of time and resources. Once established the benefits of Capital markets are enormous and long-lasting. (Narayanaswamy et al, 2017)

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4.2.2. Debt Financing Instruments

In a Debt financing the capital for the net zero development projects is raised by selling debt instruments in the form of Bonds in the capital market. In this kind of a transaction the investors lend their money to the Municipalities with the promise that the principal along with interest will be returned to the investor on the maturity of the bonds. (Investopedia).

4.2.2.1. Green Investment Loans

Green loans are any type of loan instrument made available exclusively to finance or re-finance, in whole or in part, new and/or existing eligible Green Projects. Green loans must align with the four core components of the Green Loan Principles (GLP) which are:

1. Use of Proceeds
2. Process for Project Evaluation and Selection
3. Management of Proceeds
4. Reporting

Green loans should not be considered interchangeable with loans that are not aligned with the four core components of the GLP. All designated Green Projects should provide clear environmental benefits, which should be assessed, and where feasible, quantified, measured and reported by the borrower to deter greenwashing. (ICMA Group)

4.2.2.2. Municipal Bonds

Municipal bonds are debt securities issued by a state, municipality, or governing bodies to raise capital for its infrastructure projects. The municipalities in need of capital raise funds in primary markets via primary issuances of bonds. Once bonds are issued, they can be traded in secondary markets. Municipal bonds are associated with low risk and often tax exempted making them especially attractive to investors. (Narayanaswamy et al, 2017). The unit price and the minimum buy-in for Municipal bonds is usually high and therefore criticised to be most beneficial to the rich class. Municipal bonds are further categorised as General Obligations Bond (repayment via tax revenues) and the Revenue Bond (repayment via revenues from the project)

4.2.2.3. Pooling Municipal debt:

In comparison to big cities, the cost of borrowing for smaller municipalities can be particularly high. By pooling the municipal debts with other small municipalities, the overall borrowing cost can be drastically reduced. Municipal bonds on the pooled municipal debts are then issued by the local governments and are purchased by a bank specifically authorised by the national or the state statute. The bank then pools all the bonds purchased and issues it at the national bond market. Financing authorities can then gain greater access to national and international capital markets with higher credit ratings, and a lower credit risk for each individual Municipality. (*Guide to Municipal Finance*, 2009)

4.2.2.4. Green Bonds

Green bonds are Municipal bonds issued by public entities to support climate and environmental investments attracting Investors interested in positive social and environmental impacts thus creating a greener portfolio. Alongside the standard financial characteristics green bonds are additionally evaluated based on the environmental positive impacts the bond intends to achieve. Investor diversification, closer engagement with investors and raising awareness for the projects to be financed, are some of the benefits of green bonds to the issuers. (World Bank Group, 2015)

Barriers (OECD, 2017):

- Bond market needs development through enabling policy and framework
- Lack of awareness towards benefits of green bonds and existing international guidelines
- Lack of local Green Bond guidelines

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- Costs of meeting Green Bond requirements
- Lack of Green Bond ratings, indices and listings
- Difficulties for international investors to access local markets
- Lack of domestic green investors

Case: Green Bonds Programme of Gothenburg, Sweden

In 2013, the City of Gothenburg became the world's first city to issue Green Bonds to raise capital for projects aimed at climate change mitigation and environmental protection. Through Green Bonds the city raised EUR 0.056bn in 2013, EUR 0.2bn in 2014, EUR 0.1bn in 2015 and EUR 0.1bn in 2016 totalling to EUR 0.46bn. The capital raised was invested in transition to low carbon economy, climate resilient growth and sustainable environment projects. (Novikova, A. et al, 2017)

Case: Green Bonds made by KfW, Germany

The Kredit für Wiederaufbau (KfW) or Credit for reconstruction is a German development bank. As part of its funding programme, KfW has been issuing "Green Bonds – Made by KfW" since 2014 and has raised EUR 14.5bn in the first framework and EUR 32.7bn in the second framework. The proceeds out of the green bonds contribute to KfW's overall funding and are used for KfW's general promotional activities accordingly. KfW allocates funds equal to the net proceeds of its green bonds to drawdowns under the specific loan programmes defined in its Green Bond Framework. As of Jan 2022, the Green Bond framework supports projects related to Renewable energies, Energy efficiency and Clean Transportation to serve climate protection. (KfW, 2022)

4.2.2.5. Sustainability Bonds

Sustainability bonds are Municipal bonds where the proceeds support projects with both environmental and social sustainability-related outcomes, such as affordable, energy-efficient housing or sustainable value chain creation such as affordable and energy-efficient housing. (Vanhuyse, F., et al., 2020)

4.2.2.6. Sustainability Linked Bonds

In a sustainability-linked bond, the issuer commits to future improved sustainability outcomes within a predefined time frame. Unlike green, social and sustainability bonds, however, a sustainability-linked bond has no restrictions on how the proceeds can be used. (Waltré, N. et al, 2022)

4.2.2.7. Mini Bonds

Mini bonds are General Obligation Municipal bonds with a lower unit price. Mini-bonds are marketed directly to individuals without an underwriter serving as broker-dealer. The Municipality assigns a firm to process the sale transaction, maintain the records and execute maturity payments. Mini bonds connect the taxpayers to the public projects, thus engaging citizens, increasing citizens' access to municipal bonds, increasing the perceived equity of tax-exempt financing, and increasing social capital while funding capital projects. However, the role of mini bonds is often limited in scale as they are limited number of local investors and due to the high marketing costs. (Ely, T. L. and Martell, C.R., 2016)

4.2.2.8. Institutional investors

Institutional investors are entities such as Insurance companies, commercial banks, pension funds, mutual funds, hedge funds and sovereign wealth funds. An institutional investor buys, sells, and manages stocks, bonds, and other investment securities on behalf of its clients, customers, members, or shareholders. (Investopedia). Institutional investors focus on long term and high-risk investments and can finance projects that meet their financial criteria (Risk-return-ratio). The municipality has access to large capital and therefore needs to bundle its projects for financing. This course of funding poses relatively high transaction costs for the Municipality. (Novikova, A. et al, 2017)

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4.2.3. Equity Financing

In equity financing the capital is raised by selling shares(stocks) in the capital market. In this kind of a transaction the investors buy a portion of equity in the company in the form of shares. Equity financing comes from the private placement of shares with investors and public stock offerings in listed public company or a non-listed entity. In equity financing the company does not have repayment obligation but the company is obliged to share profits. Equity financing is usually used to finance high risk projects that are usually not financed by debt instruments. Equity financing can fund net zero developmental projects in the private sector.

4.2.3.1. Private Equity

Private equity is investment in a company or an entity not publicly listed or traded with the intent to take total control of the company after the buyout. The aim is to streamline operations, increase revenues and sell it at a profit (Investopedia). Private equity firms pool the assets of multiple investors and generate large capitals for investments. With the successful mainstreaming of Environmental, Social and Governance (ESG) investing, private equity fund managers are compelled to produce new innovative products to meet the increasing demand for private equity in the ESG space. Private equity firms use both equity and debt in their investment. Private equity can play an important role in PPP infrastructure renewal projects.

4.2.3.2. Venture Capital

Venture Capital funds entrepreneurs, start-ups and young businesses with high growth potential who lack access to bank loans and other debt instruments. Venture Capital firms pool in resources from a few investors who are offered substantial portions of the company on limited partnerships basis against their investment. Venture capital can provide funding to innovative, high risk, niche projects. It can be a tool for the municipalities to spur innovation in achieving net zero development bottom up.

4.2.3.3. Green equity

Green Equity is the process of investing equity capital in emissions-reducing projects ensuring environmental sustainability. An example of this would be a private equity fund supporting renewable energy projects by investing equity capital through project financing. This type of financing appeals to a wider target audience, given it provides both financial and environmental returns for investors with the relevant interests. Investors with a greater financial risk appetite may find this appealing if the environmental impact is significant, measurable and pre-determined.

4.2.4. Other innovative instruments

4.2.4.1. Carbon market financing

Carbon markets have the potential to act as an additional source of capital for a municipality to meet the needs of projects put in place to help the municipality reach Net Zero. Carbon finance refers to a set of financial instruments and mechanisms that support projects aimed at reducing greenhouse gas emissions and crucially, abating or avoiding emissions of carbon. Cities can add carbon finance to their toolset in financing their transition towards Net Zero. Carbon finance can offer a way for cities to obtain funding for either low-carbon projects or initiatives that otherwise may not have access to traditional financing options. Carbon credits, carbon offsets, and carbon taxes are examples of carbon finance. By utilizing these instruments, cities can fund innovative, high-risk, and niche projects that contribute to Net Zero development. Carbon finance can be a tool for municipalities to spur innovation in achieving Net Zero development from the bottom up.

Measuring, Reporting, and Verification (MRV) is an essential element in carbon markets that ensure the integrity of carbon finance mechanisms. MRV ensures that the greenhouse gas emissions reductions claimed by the projects are real, measurable, and additional. Cities can utilize MRV to provide transparency and accountability in their low-carbon/carbon removal projects, which can attract carbon

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finance investments from private sector actors. By effectively applying MRV in projects funded through the use of carbon finance, cities can not only demonstrate the efficacy of their transition to Net Zero but can also provide confidence to investors to support their projects through carbon finance mechanisms. The World Bank identified that while many innovations exist that facilitate MRV, it is often quite technical and challenges around capacity to implement an effective governance structure can act as a barrier to accessing carbon finance.

4.2.4.2. Energy Performance Contracting

In an Energy Performance Contracting (EPC), an Energy Saving Company (ESCo) is delegated the task of implementing an energy efficiency or a renewable energy project. The energy savings or the energy produced funds the initial investment of the project. The ESCo is reimbursed based on its demonstrated performance to deliver the agreed energy savings. EPC is the preferred option for infrastructure investments when facilities lack capital, energy engineering skills, manpower or technology information. There are two types of EPCs:

1. *Shared Savings EPC:* In a shared savings EPC, the performance guarantee is evaluated based on the cost of energy saved. The cost savings are split according to previously agreed upon percentage based on cost of the project and risks taken by the ESCo, and for a previously agreed time span based on the length of the contract. The ESCo carries both performance and credit risk, and compensation is linked to the energy prices. This type of EPC serves clients that do not have access to finance.

2. *Guaranteed Savings EPC:* In a guaranteed savings EPC, the performance guarantee is based on the level of energy saved which is guaranteed. The ESCo carries the entire performance risk while the client who is financed either by the bank or a financing agency is responsible for the investment repayment risk. This type of EPC serves creditworthy clients. (EEEP-JRC)

4.2.4.3. Fee based financing

A private entity undertakes the entire infrastructure project including sourcing financing on behalf of the municipality for a mutually agreed fee. This can also be a vendor finance, where the private entity provides financing to private end users for investing in their products.

4.2.4.4. Energy Efficiency Obligation Scheme (EEOS):

In an Energy Efficiency Obligation Scheme (EEOs), cost savings achieved by reducing energy consumption by the private entity are used to finance the investment. EEOSs are legally enforceable regulatory mechanisms. The entities are obligated to meet certain energy saving targets by investing in eligible end-use energy-efficiency measures. This is done by setting up a quantitative energy saving target that the entities are required to meet and a monitoring mechanism to administer, regulate, measure, verify and report the energy savings. (RAP, 2012)

4.2.4.5. On-Bill Financing:

In an On-Bill Financing mechanism, the utility provides a loan to the municipality, which is repaid through monthly bills based on savings. OBF is easy to set up for small to medium investments and easy to implement. However, estimated savings should be able to repay the loan. The Municipality borrows directly from the utility and makes repayment over energy bills thereby saving on administrative costs. The loan is however reflected on the balance sheet of the Municipality (Novikova, A. et al, 2017).

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target that the entities are required to meet and a monitoring mechanism to administer, regulate, measure, verify and report the energy savings. (RAP, 2012)

4.2.5. Green Mortgage

Green Mortgage offers loans with lower interest rates as an incentive for investing in energy-efficient homes. These loans are aimed at investments in energy-efficient certified buildings and at investments for refurbishment of existing buildings to energy efficiency standards. The Borrower benefits from lower repayment instalments, benefits from lower energy bills, higher property value, and a reduced carbon footprint. Green mortgage can be an important tool for the Municipality to promote retrofitting of private households and business establishments.

4.2.6. Crowdfunding

The crowd funding investment is based on lending or reward-based models and investors can freely pledge their capital to projects they wish to support. In principle any project that can raise enough attractiveness can be crowdfunded. The Municipalities benefit from community participation, can freely decide on the return on investments, and split their finance in regular ways of funding and crowdfunding. However, the municipality owes responsibility to a huge number of small investors and runs the risk that the investors do not stick throughout the funding phase. (Novikova, A. et al, 2017).

4.2.7. Public Private Partnership schemes (PPPs)

In a Public-Private Partnership (PPP), the municipality and the private partner form an arrangement to deliver a public infrastructure project and/or provide service under a long-term contract. The private partner is responsible for the execution of the project and bears significant risks and management responsibilities while the municipality has the role to provide access to the asset, mediation, project monitoring and community representation.

A PPP differs from conventional public procurement in several respects. As per European PPP Expertise Center (EPEC), PPPs typically share the following features:

- Focus lies on the provision of services rather than assets
- Private partner bears project risks - designing, building, operating/maintaining and/or financing the project
- Focus on project deliverables rather than project inputs
- Project finance can be a part of private partners responsibility. Private partner bears risks of private sector financing
- Municipality makes performance-based payments to the private partner for service provided
- The private partner has a right to generate revenues from the provision of the service

A PPP follows several project phases (as per EPEC guidelines) as highlighted in the Figure 3 below.

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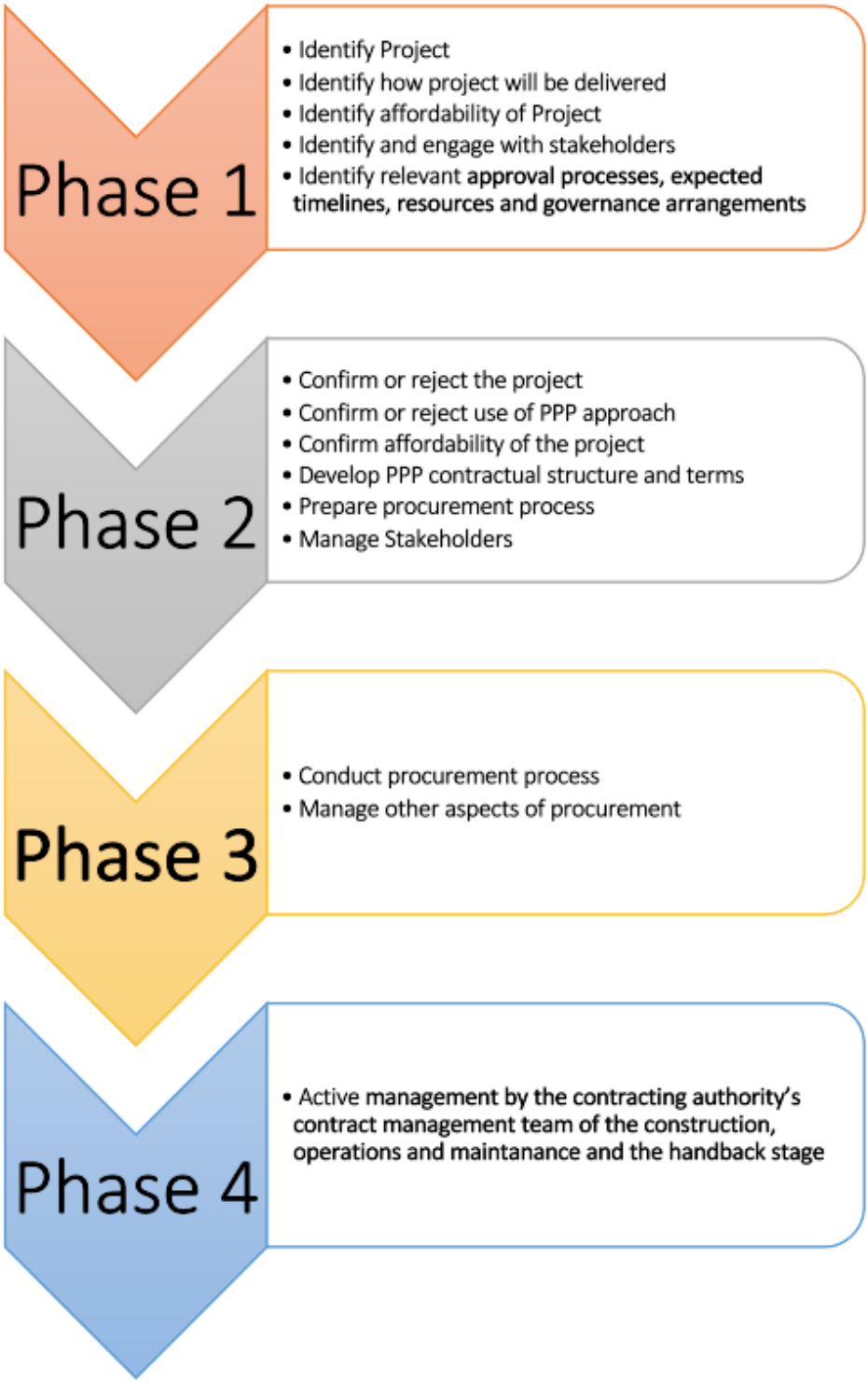

Figure 3 : Phases of a PPP project

Source: Authors

Success Factors:

- **Preparation for PPP (Phase 1-2)**: Even though the private partner is responsible for the project execution and bears the associated risks, the municipality has a crucial role to play pre- and post-establishment of the PPP. Phases 1 to 3 contribute help to establish the genuine need of a PPP, to identify the requirements to establish a PPP,

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to foresee the possible hinderances that could delay the project and to get the community onboard the project as the end users/payers for the services provided.

- **Private Partner (Phase 3)**: A PPP being a long-term contract, choosing an appropriate private partner who has the capacity to successfully deliver the project plays an important role towards the success of the project. Phase 3 consists of a cooperative partner selection process, a competitive and effective bidding process, a cooperative contract configuration design and the legal framework.
- **Good Governance (Phase 4)**: Success of a PPP depends on the smooth interactions amongst all the collaborating entities. For this it is important there is clarity on the roles of the collaborating parties, that a clear governance structure is in place, that commitment from each party is ensured, and teamwork and joint decision making can take place. Good Governance is the most important factor for the success of a PPP.
- **External factors**: External factors such as continued political support to the goals of the PPP, community support and good economic conditions contribute to the sustainability of the project. (EPEC, 2021)

Benefits to the municipality

In a PPP, through optimal risk sharing with the private partner, the municipality can deliver better "value for money" to its community. Municipalities look to the private sector for the following reasons:

- Introducing private sector technology and innovation in providing better public services through improved operational efficiency
- Incentivizing the private sector to deliver projects on time and within budget
- Imposing budgetary certainty by setting present and future costs of infrastructure projects over time
- Utilizing PPPs as a way of developing local private sector capabilities through joint ventures with large international firms, as well as sub-contracting opportunities for local firms in areas such as civil works, electrical works, facilities management, security services, cleaning services or maintenance services
- PPPs can be utilized as a way of gradually exposing state owned enterprises and government to increasing levels of private sector participation and structuring PPPs in a way to ensure transfer of skills
- Supplementing limited public sector capacities to meet the growing demand for infrastructure development
- Extracting long-term value-for-money through appropriate risk transfer to the private sector over the life of the project – from design/ construction to operations/ maintenance. (EPEC, 2021)

Constraints to municipalities

PPPs usually require new approaches, policies, and capabilities to support the preparation, design, delivery and management of projects and public services and can be more complex than conventional public procurement. Some of the challenges that the local government may face are:

- PPPs require detailed project preparation, planning and proper management of the procurement phase to incentivise competition among bidders.
- Municipal governments can have weaknesses in the capacity and processes to deliver PPPs within the institutional frameworks. This can affect PPPs at all stages of the project cycle from initial analysis through to long-term management of the contract.
- Careful contract design to set service standards, allocate risks and reach an acceptable balance between commercial risks and returns is essential.
- The private sector follows its incentive to deliver the terms agreed in the contract that are explicitly renumerated – therefore incentives and performance requirements need to be clearly set out in the PPP contract and should be relatively easy to monitor, to

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ensure successful implementation and ensure that despite no direct ownership the municipality can meet its targets
- Some projects may be more challenging politically or socially to introduce and implement than others – for example, if there is an existing public sector workforce that fears being transferred to the private sector, if significant tariff increases are required to make the project viable, if there are significant land or resettlement issues, etc.
- The private partner with its expertise in the area after time has an advantage in the data relating to the project. It is important to ensure that there are clear and detailed reporting requirements imposed on the private operator to reduce this potential imbalance (World bank PPPLRC)

From a municipal perspective limited technical and managerial capacity and subsequent shifts in responsibility to the private partner can give municipalities a sense of loss of control and ownership of the project. To avoid this pitfall, the project needs to be set up well ahead of its start, which can be supported by the municipality by investing in the required technical and managerial capacity to be able to develop a solid project framework. Moreover, the municipality needs to ensure long-term political commitment to the project. (EPEC, 2016)

Case study: Zaragosa Tramway (Zaragoza, Aragón, Spain)

Project Company: Sociedad de Economía Mixta Los Tranvías de Zaragoza, S.A.

Capital Value: €350 million (USD $465.7 million – 2010 exchange rate)

Contract Duration: 35 years (Financial Close on30 November 2010)

Key Events: Delayed financial close and early construction before financial close was reached

In this PPP arrangement, the project company was responsible for the design, build, finance, operation and maintenance of the tram rolling stock. The Spanish company, Construcciones y Auxiliar de Ferrocarriles (CAF), that provided the rolling stock, is also an equity investor in the Project Company. The tram is equipped with an energy recovery system which is stored in the on-board energy storage system. Energy is recovered during braking and charged during the 20 second stops, allowing the tram to run without an overhead power supply.

Summary Lessons Learned:

- Service can be improved based on feedback by dedicated staff for stakeholder engagement.
- A holistic approach to urban/environmental issues with active community participation can improve overall output of the project
- Collaboration facilitates innovative solutions.
- Clear, measurable and achievable KPIs, regular independent monitoring, and facilitating data gathering in performance monitoring are all critical elements of the operations phase. (Managingppp)

Case study: Barbo Light rail, Antwerp, Belgium

Project Company: Project Brabo 1 NV

Project Company Obligations: Design, Build, Finance and Maintain

Capital Value: € 178 million (USD $254 million – 2009 exchange rate)

Contract Duration: 38 years (with the AWV), 28 years (with De Lijn), (Financial Close 8 August 2009)

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Key Events: Refinancing, scope change, revocation of construction permit

The two procuring authorities Agentschap Wegen en Verkeer (AWV, the Flemish Road Agency) and De Lijn (the Flemish public transport company) entered two separate PPP contracts with Project Barbo 1 NV for extension of existing light rail network and for comprehensive renewal of associated road infrastructure. The Project Company, Project Brabo 1 NV, is responsible for the design, construction, financing and maintenance of the project. The project was delivered without delay, and, during its five years of operation, the most significant events were the refinancing in March 2016, revocation of the Project Company's construction permit in 2011 and challenges related to the interface of the project with a separate newly constructed part of the light rail network. In general, the project is perceived as a success by both Procuring Authorities.

The project has a bespoke financing structure in which De Lijn invested in 24% of the Project Company's shares at financial close in 2009 through its investment company Lijninvest N.V. set up in 2007. The city of Antwerp is contracted to design, build and finance contract the renewals of the road infrastructure within the municipality. The milestone payment from the City of Antwerp was used to repay the short-term finance raised by the Project Company. The City of Antwerp so obligated to make quarterly contributions for specific maintenance services during the operations phase.

Summary Lessons Learned:

- Known changes to the scope of work contemplated early on helps manage the implications once the costs become known.
- Efficient document control management can expedite the process and remove inefficiencies during transition periods.
- Sufficient time for change order approvals helps reduce delay and tensions amongst the collaborating partners
- Strong relationships with all relevant stakeholders can assist in managing issues with permitting efficiency.
- Need to consider an induction time period for the Project Company to adjust into the operations phase and become fully compliant with its operational KPIs.
- Proactive management from both parties to resolve the cause of non-compliance of KPIs.
- Creating a working group and appointing a financial advisor during a refinancing can assist the Procuring Authority to attain a positive outcome from a refinancing of the Project Company. (Managingppp)

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5. Summary of Barriers and Levers identified

In order to support cities in financing their transition to climate neutrality, the Net Zero Cities consortium has identified barriers that cities face today and the strategies they developed to counter these difficulties. To do so, the partners have conducted interviews with several cities of different sizes and regions in Europe, attended webinars, sought feedback from the consortium's city networks and focus group with cities organised within WP13, and conducted desktop research. This analysis will help to develop a more tailored approach in the support programme to be developed in the NZC project.

5.1. Identified barriers to accessing funding and financing

Throughout the report, barriers related to specific financial instruments or funds have been identified. In this section, the aim is to go further and identify the structural barriers that most of the cities face in seeking to finance their transition to climate neutrality. A distinction is made between barriers specific to the municipal level and those related to the investment community.

5.1.1. Barriers at the municipality Level

The main barriers identified at the municipal level are the following:

Lack of capacity and skills: The lack of staff and/or training of staff is the main barrier mentioned by the cities. Indeed, cities have many difficulties in managing and absorbing funds that are made available due to the lack of human resources and internal skills. This activity is very time-consuming for the existing staff which in the smaller municipalities do not have this role only. Fund opportunities for smaller cities are automatically reduced unless they are supported by local agencies or regional/national administrations. Many cities underlined how the excessive large tranche of money per fund/project creates a substantial advantage for big cities and penalize the small ones that might have not enough capacity. It creates a comparative advantage for larger cities to access funding.

Cumbersome application process and myriad existing funds: This is a barrier that often comes up in discussions with cities. We note their confusion and lack of understanding of all the existing programs at European level, at national and regional level in addition to national and regional funds and opportunities in the private sector. Besides, the process of these calls for projects or requests for funds are complicated to manage and sometimes time consuming. The amount of information on the funding opportunities is not always easy to digest and available to all cities (language barriers, excessive length etc.) Small-medium cities have also found many difficulties in applying for EU funds due to the heavy and long process requiring many proof documents, studies and therefore skilled staff.

Absence of national support: Medium-small cities ask for more dialogue and collaboration with national administration but in most of the cases, there is no state institution capable to support cities at this low/small level. In addition, in some cases, the allocation of funds is highly politicised, resulting in unequal treatment of local governments that may or may not agree with the policy and political orientation of the central state.

Budget prioritisation and interservice competition: In many cities, budgets have to be divided between several departments and it is a question of prioritizing the budget for some actions over others. The choices are sometimes difficult between the operational functioning of the city (financing of usual municipal services) and the investment in the transition, less visible and immediate for the inhabitants. Also, cities face a political constrains in their budget prioritization. This has been even more the case during the COVID-19 pandemic (CEMR, 2020).
There is also sometimes competition between departments in the administration for these budgets and a lack of mutual understanding regarding the budget priorities.

Lack of culture and engagement with financial sector: Some cities, all across Europe but particularly in Eastern Europe, have reported a tendency to rely on public subsidies and to ignore alternative funding

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possibilities. This stems from a historical legacy, a lack of culture of how the private market works, as well as a lack of knowledge on the existing alternative financing opportunities and how to mobilize them. Due to this lack of understanding of the codes of the private sector, cities sometimes find it difficult to propose 'bankable' projects and therefore to engage with the private sector. It is important that cities can build better relationships with these partners.

Lack of the "planning dimension": Most of the cities predominantly focus on receiving funds without developing in advance a clear and detailed plan on how that money will be spent (most of the times, this activity is not requested to receive EU funds). City projects are not programmed and scheduled beforehand, leading to delays in the use of the received funds and, in some cases, to their squander.

Siloed request on finance: Cities have large numbers of climate-related projects (often of a small scale) that are scattered and not connected, making it challenging to advance the work towards climate neutrality quickly enough. In this regard, cities need to move away from siloed approaches towards a mission-oriented portfolio of complementary projects.

Difficulty to combine the different funding sources: Cities often find it difficult to combine funding from different sources (private, public) or different levels (European, national, regional, local) to finance a project. Cities lack a proper mechanism to help them combine these resources.

Regulatory and legislative constraints: In many countries, there are (national, regional, local) regulations and legislations in place that limit cities' climate finance options. For example, according to the Covenant of Mayors report (2016), some cities are legally constrained from taking debt, affecting their capacity to invest and develop projects in the field of climate.

Non systematically aligning European funding programmes and cities' needs: Some of the cities consulted noted that the local level is not systematically or enough considered when designing European funding programmes. In fact, the needs of cities are not always taken into account upstream and therefore are not reflected in the proposed offer. This is particularly the case for those negotiated in the European semester (CCRE, 2022).

Figure 4: Funding and financing barriers for cities

Source: authors

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It should be noted that some of the facilities in place, notably technical assistance facilities (see section 2), attempt to resolve some of these difficulties. This is the case of the lack of culture of innovative means of financing which programmes such as PROSPECT + (H2020 call) or EUCF are trying to remedy to this. However, these difficulties persist for some cities as not all have access to such training. The Covenant of Mayors regularly offers webinars as well as information on its website to try to shed light on the myriad of existing funds. Initiatives are in place but more needs to be done to help cities overcome these barriers.

5.1.2. Barriers related to the investment capital

Availability of data: Availability of data is an important starting requisite for financial entities to analyse the risks in providing private investment capital. This refers to both public and private city stakeholders. Many municipalities, especially small ones, do not have the resources, both human and technological, to gather sufficient data to analyse the bankability of projects.

Limited Scale: Some of the most influential pools of capital are infrastructure funds, which have received very significant inflows over recent years. That is for many reasons, but a large part is the perceived lower correlation to other asset classes. However, the very scale of these funds is often a stumbling block to capital deployment. These funds want sizable opportunities and in the vast majority of cases the projects that cities are focused on are simply too small. A possible way to overcome this barrier is for multiple projects to be brought together into a single project. For instance, a number of cities from one country could collaborate on EV infrastructure to create a single funding vehicle that could get the engagement of the larger funds who would otherwise find single city programmes too limited.

Measurement of Co-benefits: The investment community has fully embraced the concepts of Environment, Social and Governance (ESG) in their approaches to deploying capital and all major firms have teams dedicated to the topic and broader sustainability financing. However, many barriers remain, which could be categorised as Data, Size, Complexity. One of the most significant in any context, but especially so with respect of Net Zero Cities, is the accuracy with which the impact of any project can be measured. With any investment there is the need to assess the likely return, relative to the unit of risk that is used. That output should be easily estimated, and a judgment made upon the viability of a project. In the arena of sustainable finance, however, the investor will also want to have metrics for the non-financial returns that can be achieved. That is often far harder to accurately assess, and in an urban context the inter-linked nature of outcomes and the externalities created by certain investments makes such a calculation very challenging. The ability to be able to provide robust data would be very supportive.

Governance: Many of the potential investment opportunities will be structured with blended capital constructs, either because of the return profile (too low or too long-dated) or the desire of the city authority to have influence over the investment. However, complexity is often the enemy of investment success and creates to a barrier to funds putting capital to work. There is not a fundamental objection to commercial investment pools working with both public funding entities and capital that is less returns-focussed - social, philanthropic, concession capital. To make these structures viable and be able to respond swiftly to investment needs, governance needs to be in place that is transparent, with clearly delineated responsibilities between those engaged.

Competing Sources: Another area of complexity that is a possible barrier for investors is the sheer variety of investors that might engage with Net Zero Cities. Whilst a broad spread widens the pools of capital available, it brings with it the risk of competing pressures for projects from different funding sources. If cities do not appreciate the subtleties of insurance funds vs private equity vs impact capital and so on, those capital providers may be frustrated and withdraw support. It is essential for the investor base to explain each of their target returns, impact ambitions and overall strategy clearly to cities, but equally those cities need to understand and respect the differences between investors to ensure they gain the greatest benefit.

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5.2. Identified levers and best practices to mobilise funds

Cities have already put in place strategies and good practices to finance climate neutrality. This report also aims to highlight them and to propose to other cities to replicate them.

Certain of these best practices can applied directly within the city administration or in the municipalities working methods. While others can take form of demands for higher governance level as national or EU levels to ensure an adapted framework. All levers are gathered in the Figure 4 below.

5.2.1. Levers at municipality level

Develop cities own Resources: The more decentralised municipalities, collecting their own taxes, have shown much more capacity to access private funding. Indeed, own resources inspire the confidence of third parties.

Build strong relations with key national players: It is key for municipalities to have strong links with stakeholders allowing access to funds or financing. This is the case for French municipalities which have good relations with the Banque des Territoires, a bank dedicated to local authorities. Municipalities must be able to identify and maintain good relations with public and private fund managers, whether they are managing authorities for cohesion programmes, energy agencies or regional authorities or investment funds. This allows communities to be informed and to be able to respond to calls for projects in a timely manner but also to the requirements of funders.

Join forces with other municipalities: In some of the cases studied, local authorities join to finance a post dedicated to fundraising and financing on behalf of these authorities. This makes it possible to make savings, to have internal expertise on these issues, and to respond collectively to certain calls for projects. This sometimes takes very institutionalised forms or municipalities may dedicate this role to local energy agencies grouping several municipalities.

In general, meetings between local authorities allow them to learn from each other and to teach good practice.

Increase financing culture and skills in the municipality administration: One of the barriers regularly put forward is the lack of knowledge about alternative financing. Access to finance depends in part on employees' knowledge, training and culture. Projects such as PROSPECT + or some capacity building sessions of the Covenant of Mayors can partly overcome this. But it is a question of going further and bridging the gap between world of finance and the world of cities and vice versa. It is also a question of providing municipalities or inter-municipalities with dedicated staff trained in these subjects.

Integrate climate change into city budgeting*:* There are several examples of cities that have climate budgets (e.g. Oslo, Paris, Stockholm, among many others) or are working to develop one. Climate budgeting can help mainstream climate action across the city government. This can also help to push climate-friendly considerations into other areas, e.g. procurement contracts. Moreover, several cities consider that climate budgets can support the development of investment plans as they can provide information on where the city is in its climate neutrality journey. It is also considered to serve as a tool for detailed, short-term planning.

Develop a transversal approach: the Committee of Regions advice local authorities to mainstream climate action into other investments to secure the required capital for mitigation and adaptation measures (European Committee of the Regions, 2017). This can be done by adopting a transversal approach and securing investments in other sectors and services within the same municipality. “For instance, mitigation and adaptation measures can be mainstreamed into LRAs’ on-going investments in infrastructure maintenance and urban development” (European Committee of the Regions, 2017).

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5.2.2. Levers at EU and national level for a suitable framework

Adapt the size of call for project to small cities: smaller cities stressed the difficulty for them to apply for funds with very high minimum amounts for projects. This requires an important coordination of efforts to build coalitions with other partners with similar ambitions to apply to funds. This tedious work could be avoided by proposing more suitable minimum project sizes. This could take the form of a percentage of the overall project budget dedicated to small communities with a suitable project size.

Finally, to with the difficulty of the smallest municipality in having the staff capacity to apply to project calls, a mentoring system can be foreseen, as explained in a French study (AFL/INET, 2021): in order to win a call for projects, each large community project should include support for a smaller one, with the advantage of pooling resources and potential of the territories (large spaces, engineering).

Diffuse the good practices of the beneficiaries of facilities: It seems important to move away from the competitive call for projects logic and to offer mutual support and feedback between cities (Etude AFL/ INET, 2020). To do this, facility managers can disseminate the good practices analysed among the beneficiaries of the funds. This would also limit the frustration of cities that apply but do not receive positive responses by proposing areas for improvement.

Adopt direct funding methods for cities: European cities have also stressed the need for directly directed EU funding for cities. Indeed, depending on the national political context and the relationship between the latter and local elected representatives, some cities may be favoured or disadvantaged by national governments in accessing European funds. To counter this, some European funds could be directly directed to the cities that benefit from them. Furthermore, this would allow citizens to identify more clearly what European funding is used for in their cities and would therefore contribute to a more direct and popular control of the use of European funds through citizens' investment.

Develop long term funding accessible for cities: The literature points to the need for cities to have a perspective on long-term funding possibilities in order to ensure that plans and investments are put in place. However, many EU funds are now only offering short-term projects. It could therefore be an improvement to propose projects over 5 -7 years rather than 2 to 3 years in order to secure the cities' investments.

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Figure 5: Levers at municipal and EU/national levels to finance Net Zero Cities' objective

Source: Authors

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Conclusion

This report has shown that there are great opportunities to finance the transition of cities to climate neutrality with various funding and financing instruments. The EU has developed numerous funding sources to support climate-related projects. At the same time green investment private capital has grown exponentially over the past few years. However, there are limited blended finance structures to combine both public and private capital sources. Both sources of capital require difference approaches and the process for sourcing each varies. The challenge for cities remains to attract and secure available capital at scale.

Cities face many barriers to accessing both public and private capital. which can be structural/process driven, related to the functioning of the distribution of funds, or related to the organisation, capacity and know-how of cities in particular regarding to financing. Governance plays a crucial role in ensuring blended capital is structured in coherent manner.

Some technical facilities are trying to reduce these barriers by supporting cities to develop viable and bankable projects; but only a limited number of cities have access to it. Thus, it is necessary to scale up the technical assistance, and continue to reduce these non-economic barriers to enable cities to access the available capital.

The NZC project will therefore work to support the 100 Climate Neutral Cities mission to overcome these barriers and provide tangible support to cities in leveraging additional private capital.

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