UP2030 Green Finance Guide

Key Stakeholders

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Table of Contents

1. Local/subnational government

Definition:
With direct responsibility for essential services and infrastructure, local and regional governments are uniquely positioned to plan, finance, and deliver projects that build resilience and advance sustainability goals. To fund local resilience and sustainability initiatives, municipalities can leverage municipal budgets, issue green bonds, establish public-private partnerships, access national and international climate funds, and introduce local taxes or fees for sustainability initiatives. The ability to access and deploy different financial instruments, often depends on the broader enabling environment, such as the degree of fiscal and financial autonomy (e.g., the ability to introduce new taxes) and national regulatory frameworks (e.g., limitation on municipality debt levels).

Examples of stakeholders:
- Municipalities
- Local districts
- Communes
- State government
- Regional governments

***Examples for financial instruments where stakeholder provides finance*:**
- Municipal budget spending
- Land banking and land readjustment
- City climate and green funds
- Regional development funds
- Revolving funds (revolving credit facilities)
- Contingency and reserve funds
- Traditional grants
- Recoverable grants
- Performance-based grants
- Capital grants
- Energy Performance Contracts (EPC)
- Internal contracting
- Pooled procurement
- Aggregation platforms
- Microcredit
- Microleasing

***Case studies*:**
- Cape Town Green Bond
- Stormwater credit trading program
- BABLE Solutions: Smart Cities, EUROPE
- Tax-line financing for energy efficiency with Property Assessed Clean Energy (PACE) Program in the USA
- Pooled finance and a blended finance approach in the Water and Sanitation Pooled Fund (WSPF) in Tamil Nadu, India
- Leasing model for electric buses and charging infrastructure in Shenzhen, China
- Climate bond financing adaptation measures in Paris
- Province of Ontario’s Green Bond Program

- Miami forever Bond
- Gothenburg Green Bonds
- Public–private partnership for a new flood-proof district in Bilbao
- Ghent crowdfunding platform realising climate change adaptation projects
- Mix of private and public funding to adapt Malmö's new harbour district
- The economics of managing heavy rains and stormwater in Copenhagen
- Revolving energy saving fund Litomerice, Czech Republic
- LEMON Project
- Municipal Project Finance in the Municipality of Rustenburg
- EEA grants supporting the city of Bratislava (Slovakia) to implement climate mitigation and adaptation measures
- Betterment levies for urban infrastructure financing of Alfonso Lopez Plaza in Manizales, Colombia
- Land value capture for the Sabarmati Riverfront regeneration in Ahmedabad, India
- Nature restoration in Freetown, Sierra Leone
- Funding modern water access in Bandar Lumpung, Indonesia
- Public-bike-sharing network in Bogotá, Colombia
- Land Value Capture Along the Outer Ring Road in Hyderabad, India
- Ngakute Nanbu land readjustment project
- Porto Maravilha urban regeneration project in Rio de Janeiro, Brazil
- Warrington Borough Council Investing in Renewable Energy with Community Municipal Bonds

Further resources:

- https://newclimate.org/sites/default/files/2023-07/NewClimate_GIZ%20Regions_July23.pdf
- https://www.oecd.org/en/publications/climate-adaptation-why-local-governments-cannot-do-it-alone_be90ac30-en.html
- https://icma.org/blog-posts/municipal-budgets-are-force-addressing-climate-change

2. National government

Definition:
National governments can help municipalities finance climate change projects by providing direct funding, such as intergovernmental transfers, grants and low-interest (concessional) loans, to support, often emphasising collaboration and alignment with broader climate strategies. They can allocate revenues from carbon pricing mechanisms, like taxes or cap-and-trade systems, to fund local climate actions. National governments can also create dedicated climate funds or green bond programs to channel resources to municipalities. By offering technical assistance and policy support, they enable municipalities to design impactful and aligned projects. Additionally, governments can de-risk municipal climate initiatives by providing guarantees or co-financing, making them more attractive to private investors.

Examples of stakeholders:
- Government ministries

***Examples for financial instruments where stakeholder provides finance*:**
-Taxes (property or business tax)
- Tax abatements for positive action
- Tax or rebates on negative development aspects
- Tax-line financing for clean energy and energy efficiency measures
- Intergovernmental transfer
- Revenue support
- Ecological fiscal transfers (EFT)
- Land banking and land readjustment
- City-based emissions trading systems (ETS) and carbon markets
- Carbon credits from carbon markets (international or regional)
- Nature-based and biodiversity credit mechanisms
- City climate and green funds
- Regional development funds
- Revolving funds (revolving credit facilities)
- Contingency and reserve funds
- Sovereign wealth funds
- Green investment funds
- Currency exchange funds
- Partial or full credit guarantee
- Loan loss reserve (LLR)
- Risk insurance products
- Contracts for difference (CfD)
- Debt for climate swaps and debt for nature swaps
- Energy Performance Contracts (EPC)
- National payment for ecosystem service (PES) schemes

***Case studies*:**
- Contribution of carbon credits to pay for green transport improvements in Bucharest, Romania
- Tax-line financing for energy efficiency with Property Assessed Clean Energy (PACE) Program in the USA
- Pooled procurement for purchasing e-buses for multiple operators in Santiago, Chile

- The Warehouse for Energy Efficiency Loans (WHEEL) aggregation platform for energy efficiency financing in cities in the USA.
- Leasing model for electric buses and charging infrastructure in Shenzhen, China
- Mix of private and public funding to adapt Malmö's new harbour district
- Guaranteed loans from the Lithuanian Energy Efficiency Fund
- Risk guarantee to enable the public-private partnership for the Kigali Bulk Water Supply Plant in Rwanda
- Dublin Port Headquarters
- Land value capture for the Sabarmati Riverfront regeneration in Ahmedabad, India
- Funding modern water access in Bandar Lumpung, Indonesia
- Pooling finance for energy efficient buildings in South Africa
- Ngakute Nanbu land readjustment project
- Alberta's Renewable Electricity Program
- Energy-efficient street lighting upgrade in Grendon, UK

Further resources:

- https://www.c40.org/wp-content/uploads/2025/02/CHAMP-Guidebook-Executive-Summary.pdf
- https://ndcpartnership.org/knowledge-portal/climate-toolbox/local-governments-climate-finance-instruments-global-experiences-and-prospects-developing
- https://netzerocities.eu/wp-content/uploads/2023/11/D7.1-City-climate-finance.pdf
- https://www.climatepolicyinitiative.org/wp-content/uploads/2021/06/2021-State-of-Cities-Finance-Executive-Summary.pdf
- https://www.aceee.org/sites/default/files/pdfs/Strategies%20for%20Local%20Government%2011.1.pdf
- https://documents1.worldbank.org/curated/en/099041224090039327/pdf/P17612810871700531ae091b1c089264caf.pdf

3. Public utility companies

Definition:
Public utilities, whether publicly or privately owned, provide essential services such as electricity, water, waste management, and public transportation. They operate under regulatory frameworks to ensure accessibility, reliability, accountability and affordability of these services. In the context of climate finance, they are key partners for municipalities in deploying sustainable infrastructure and delivering low-carbon, climate resilient services. Utilities can mobilise their own capital through borrowing or bond issuance, channel external funding (from climate funds or development banks, and design, and implement financing mechanisms, such as tariff-based recovery schemes, on-bill financing, revolving funds, to support sustainability investments. They are key players in energy efficiency, renewable energy and water-, wastewater and waste mangement and public transportation projects.

Examples of stakeholders:
- Electricity suppliers (e.g. EFD, E.ON)
- Water and wastewater services (e.g. Thames Water, Veolia Water)
- Natural gas suppliers (e.g. Sempra Energy, ENGIE)
- Public transport (e.g. RATP, Deutche Bahn, Transport for London)
- Telecommunications (e.g. Deutsche Telekom, Orange S.A.)

***Examples for financial instruments where stakeholder provides finance*:**
- Revolving funds (revolving credit facilities)
- Partial or full credit guarantee
- Municipal bonds
- Green bonds
- Power purchase agreements (PPA) for clean energy
- Energy Performance Contracts (EPC)
- On-bill financing (OBF) or on-bill repayments (OBR)

***Case studies*:**
- Combining private investment and an EIB loan to cope with water scarcity in Lisbon, Portugal
- Stormwater credit trading program
- Mayoral Community Infrastructure Levy in London, UK
- The economics of managing heavy rains and stormwater in Copenhagen
- Smart lighting Bahnstadt Heidelberg, Germany
- Risk guarantee to enable the public-private partnership for the Kigali Bulk Water Supply Plant in Rwanda
- Municipal Project Finance in the Municipality of Rustenburg
- Open District Heating in Stockholm, Sweden

Further resources:
- https://www.sciencedirect.com/science/article/pii/S2214629623002700
- https://netzerocities.eu/wp-content/uploads/2023/11/D7.1-City-climate-finance.pdf

4. International Climate Finance Institutions

Definition:
They include public international actors, such as multilateral and bilateral development banks, global climate funds, and international (including EU-level) financing instruments that provide long-term capital and technical assistance for municipal climate action. Through mechanisms like grants, concessional loans, guarantees, and blended finance, these institutions help cities prepare and implement climate-aligned projects while reducing financial and investment risks. They also support municipalities with capacity building, project preparation, and access to green bonds or public-private partnerships, and play a key role in aligning local action with national and global climate goals, including the Paris Agreement and the Sustainable Development Goals (SDGs). Challenges with this type of financing include complex application processes, limited direct access, and internal capacity constraints for meeting eligibility and reporting requirements.

***Examples of stakeholders*:**
- European Commission
- Green Climate Fund
- City-focused initiatives (e.g., C40, CCFLA)
- European Regional Development Fund (ERDF)
- European Investment Bank
- World Bank

Examples for financial instruments where stakeholder provides finance:
- Tax-line financing for clean energy and energy efficiency measures
- Charges and pricing for actions and services
- Land banking and land readjustment
- Building rights and planning permits
- Development charges
- Land sales or auction
- Land or infrastructure asset leasing
- Philanthropic funds
- Community funds
- Green bonds
- Blue bonds
- Climate bonds (climate mitigation and climate resilience bonds)
- Sustainable bonds (or sustainability bonds)
- Project bonds
- General obligation bonds (GO bond)
- Sustainability linked bonds (SLB)
- Mini bonds
- Revenue bonds
- Catastrophe bonds (CAT bonds)
- Social impact bonds (SIBs)
- Environmental impact bonds (EIBs)
- Energy Performance Contracts (EPC)
- Energy upgrade financing schemes (Energy Efficiency Obligation Scheme (EEOS))
- On-bill financing (OBF) or on-bill repayments (OBR)
- As-a-service' models

- Crowdfunding
- Sponsorship and donations
- Stand-alone voluntary payment for ecosystem service (PES)agreements between buyers and sellers
- Microfinance
- Microcredit
- Micro insurance
- Micro leasing
- Micro savings

***Case studies*:**
- Residential energy efficiency instruments in Lithuania
- Combining private investment and an EIB loan to cope with water scarcity in Lisbon, Portugal
- Climate adaptation notes for infrastructure-related adaptation projects in Sub-Saharan Africa
- Pooled finance and a blended finance approach in the Water and Sanitation Pooled Fund (WSPF) in Tamil Nadu, India
- Scaling up investments by Argentinian SMEs in renewable energy and energy efficiency
- Mix of private and public funding to adapt Malmö's new harbour district
- Debt-for-nature swap involving the government of Belize
- Revolving energy saving fund Litomerice, Czech Republic
- Financing of the transport sector in Graz, Austria
- Risk guarantee to enable the public-private partnership for the Kigali Bulk Water Supply Plant in Rwanda
- LEMON Project
- Energy Efficient Mortgages Action Plan (EeMAP): green mortgages in the European Union to incentivise energy efficient homes
- Open District Heating in Stockholm, Sweden
- Clean Energy (CE) financing the construction of Mongolia's first wind farm
- EEA grants supporting the city of Bratislava (Slovakia) to implement climate mitigation and adaptation measures
- Municipal Sustainability-Linked Bond in Zagreb, Croatia
- Adaptation investments financed via a natural capital finance facility in Athens, Greece
- Municipal Waste-to-Energy Project in Belgrade, Serbia, with MIGA Guarantees and IFC Financing
- Nature restoration in Freetown, Sierra Leone
- Pooling finance for energy efficient buildings in South Africa
- Addressing water scarcity and climate change in Izmir, Turkey
- Green Loan to Finance Public Transportation Infrastructure in Lima, Peru

Further resources:
- https://www.wri.org/initiatives/international-financial-institutions
- https://openknowledge.worldbank.org/entities/publication/56bd01a9-4aea-482d-a89a-c5b30b13becb

5. Institutional Investors and Sovereign Funds

Definition:
Institutional investors, such as pension funds, insurance companies, endowments, mutual funds, and asset managers, pool funds to invest in a wide range of financial assets, including stocks, bonds, real estate, and private equity. As key players in global financial markets, they wield significant influence due to the scale of their resources and capital flows. In the context of climate finance, institutional investors are increasingly recognized as critical providers of long-term capital for projects aimed at mitigating and adapting to climate change. Their investments often target renewable energy, sustainable infrastructure, green real estate and urban climate initiatives, such as green public transit systems and urban flood defenses. Their decisions are driven by financial returns, regulatory requirements, and environmental, social, and governance (ESG) considerations.

Sovereign wealth funds (SWFs) are state-owned investment funds that manage public funds, derived from budget surpluses, natural resource revenues or foreign exchange reserves. SWFs operate independently of central banks or finance ministries. SWFs invest domestically and internationally across diverse asset classes, with the goal of achieving commercial returns and supporting national economic objectives. Their long investment horizons and public mandates position them to blend public policy goals with market-based returns.

In the context of climate finance, both institutional investors and SWFs can play a crucial role by leveraging their vast resources to support municipal climate initiatives, attract private finance (through de-risking and blending), and fostering long-term sustainable investments aligned with global climate goals and ESG factors. Challenges include potential misalignment of priorities, as these investors may prioritise profitability over local community needs, and complexity of structuring such investments.

***Examples of stakeholders*:**
Asset managers and institutional investors:
- BlackRock, Inc.
- The Vanguard Group
- State Street Corporation
- Macquarie Asset Management
- Fidelity Investments
- APG
- Alecta
- SWFs:
- Norway's Government Pension Fund Global
- Ireland Strategic Investment Fund

Examples for financial instruments where stakeholder provides finance:
- City climate and green funds
- Revolving funds (revolving credit facilities)
- Green investment funds
- Currency exchange funds
- Infrastructure debt funds
- Convertible grants
- Green loans
- Commercial (non-concessional) loans

- Sustainability-linked loans
- Syndicated loan
- Term loans
- Project level market rate debt
- Partial or full credit guarantee
- Loan loss reserve (LLR)
- Climate Adaptation Notes (CAN)
- Risk insurance products
- Debt for climate swaps and debt for nature swaps
- Municipal bonds
- Green bonds
- Blue bonds
- Climate bonds (climate mitigation and climate resilience bonds)
- Sustainable bonds (or sustainability bonds)
- Project bonds
- General obligation bonds (GO bond)
- Sustainability linked bonds (SLB)
- Mini bonds
- Revenue bonds
- Catastrophe bonds (CAT bonds)
- Social impact bonds (SIBs)
- Environmental impact bonds (EIBs)
- Private equity
- Green equity
- Equity futures
- Project level equity
- Yieldcos
- Pooled finance
- Asset-based securities (ABS) or green securitization

***Case studies*:**
- Climate adaptation notes for infrastructure-related adaptation projects in Sub-Saharan Africa
- Guaranteed loans from the Lithuanian Energy Efficiency Fund
- Risk guarantee to enable the public-private partnership for the Kigali Bulk Water Supply Plant in Rwanda

Further resources:

- https://www.irena.org/publications/2020/Nov/Mobilising-institutional-capital-for-renewable-energy
- https://www.oecd.org/content/dam/oecd/en/publications/reports/2020/06/the-role-of-sovereign-and-strategic-investment-funds-in-the-low-carbon-transition_0321a349/ddfd6a9f-en.pdf
- https://documents1.worldbank.org/curated/en/099041224090039327/pdf/P17612810871700531ae091b1c089264caf.pdf
- https://www.ifswf.org/sites/default/files/IFSWF_Climate_Change_Feb2020%20FINAL.pdf
- https://netzerocities.app/resource-2356

6. Capital Markets

Definition:
Capital markets facilitate the trading of long-term debt and equity instruments. They play a critical role in mobilising large-scale private sector investments to address climate change by providing municipalities, companies, and governments with access to diversified sources of finance for climate mitigation and adaptation initiatives, through instruments like green bonds, sustainability-linked bonds, or issuance of equities. Mobilising finance through capital markets can be challenging for municipalities due to legal and regulatory constraints, limited creditworthiness, and lack of technical capacity to structure and manage capital market instruments. High transaction costs, stringent disclosure requirements, and difficulty attracting investor interest, especially for smaller or unfamiliar issuers, can further limit access to sustainable finance at scale.

***Examples of stakeholders*:**
- International and domestic capital markets (e.g., Luxembourg Green Exchange, London Stock Exchange Green Bond Segment)

Examples for financial instruments where stakeholder provides finance:
- City climate and green funds
- Revolving funds (revolving credit facilities)
- Green investment funds
- Currency exchange funds
- Infrastructure debt funds
- Commercial (non-concessional) loans
- Syndicated loan
- Project level market rate debt
- Margin financing
- Partial or full credit guarantee
- Loan loss reserve (LLR)
- Risk insurance products
- Debt for climate swaps and debt for nature swaps
- Municipal bonds
- Green bonds
- Blue bonds
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- Project bonds
- General obligation bonds (GO bond)
- Sustainability linked bonds (SLB)
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- Revenue bonds
- Catastrophe bonds (CAT bonds)
- Social impact bonds (SIBs)
- Environmental impact bonds (EIBs)
- Private equity
- Green equity
- Equity futures
- Project level equity

- Yieldcos
- Pooled finance
- Asset-based securities (ABS) or green securitization

Case studies:
- Fiji's Sovereign Green Bond

Further resources:
- https://unfccc.int/sites/default/files/resource/Capital%20Markets%20for%20Climate%20Action%20May%2023_0.pdf
- https://www.climatebonds.net/files/reports/cbi_credentials.pdf

7. Commercial Banks

Definition:
Commercial banks are key players in mobilising private capital for municipal climate projects by offering green financial products, like loans and bonds underwriting, while also facilitating partnerships with development banks and institutional investors. By aligning their portfolios with climate objectives and advancing innovation in green banking, commercial banks help structure financing mechanisms for urban initiatives, such as renewable energy, energy efficiency, and sustainable urban infrastructure. Financing municipal climate projects through commercial banks can provide access to significant capital, scalability, and private sector expertise, enabling municipalities to undertake large-scale, sustainable initiatives. Commercial banks typically finance revenue-generating, well-structured projects and will assess creditworthiness, repayment capacity, and risk. Early project preparation and alignment with bank requirements, such as feasibility studies, clear cash flow models can significantly improve access to financing, and is also recommended, as banks can provide expertise in structuring projects and assessing their commercial viability.

***Examples of stakeholders*:**
- BNP Paribas
- HSBC
- Deutsche Bank
- ING Bank
- Santander
- Credit Agricole
- UniCredit
- Citi

Examples for financial instruments where stakeholder provides finance:
- Tax-line financing for clean energy and energy efficiency measures
- City climate and green funds
- Revolving funds (revolving credit facilities)
- Green investment funds
- Currency exchange funds
- Infrastructure debt funds
- Green loans
- Commercial (non-concessional) loans
- Sustainability-linked loans
- Syndicated loan
- Term loans
- Project level market rate debt
- Partial or full credit guarantee
- Loan loss reserve (LLR)
- Energy upgrade financing schemes (Energy Efficiency Obligation Scheme (EEOS))
- Operating lease finance
- Hybrid models for purchase and lease of assets
- Model with forfaiting and waiver of defence
- Aggregation platforms
- Asset-based securities (ABS) or green securitization

***Case studies*:**
- Cape Town Green Bond
- Climate adaptation notes for infrastructure-related adaptation projects in Sub-Saharan Africa
- Pooled finance and a blended finance approach in the Water and Sanitation Pooled Fund (WSPF) in Tamil Nadu, India
- The Warehouse for Energy Efficiency Loans (WHEEL) aggregation platform for energy efficiency financing in cities in the USA.
- Leasing model for electric buses and charging infrastructure in Shenzhen, China
- Scaling up investments by Argentinian SMEs in renewable energy and energy efficiency
- Vrijburcht: a privately funded climate-proof collective garden in Amsterdam
- Debt-for-nature swap involving the government of Belize
- Guaranteed loans from the Lithuanian Energy Efficiency Fund
- Energy Efficient Mortgages Action Plan (EeMAP): green mortgages in the European Union to incentivise energy efficient homes
- Municipal Project Finance in the Municipality of Rustenburg
- Land Value Capture Along the Outer Ring Road in Hyderabad, India
- Investment in renewable energy by Norway's sovereign wealth fund

Further resources:

- https://ndcpartnership.org/knowledge-portal/climate-toolbox/local-governments-climate-finance-instruments-global-experiences-and-prospects-developing
- https://documents1.worldbank.org/curated/en/099041224090039327/pdf/P17612810871700531ae091b1c089264caf.pdf
- https://www.mfw4a.org/blog/role-central-and-commercial-banks-promoting-sustainable-finance-africa

8. Private Equity Funds

Definition:
Private equity funds pool capital from institutional and individual investors to acquire ownership stakes in private companies, special purpose vehicles (SPVs), or projects to generate high returns. In the context of urban climate action these funds target sustainability-focused sectors, such as renewable energy, energy efficiency, and climate-resilient infrastructure. By providing long-term capital and leveraging private sector expertise, private equity can help scale innovative projects that align with municipal climate goals, particularly when public funding is limited or when blended finance structures are used. However private equity investments may come with high costs, reduced municipal control, and a strong focus on financial returns, which may conflict with broader social or environmental goals. Municipalities should carefully assess these trade-offs to ensure that partnerships support long-term climate and community goals.

***Examples of stakeholders*:**
- Euroazeo's Smart City II Venture Fund
- Meridiam

Examples for financial instruments where stakeholder provides finance:
- City climate and green funds
- Revolving funds (revolving credit facilities)
- Green investment funds
- Recoverable grants
- Convertible grants
- Margin financing
- Private equity
- Green equity
- Equity futures
- Project level equity
- Yieldcos
- Model with forfaiting and waiver of defence
- Pooled finance
- Asset-based securities (ABS) or green securitization

***Case studies*:**
- Pooled finance and a blended finance approach in the Water and Sanitation Pooled Fund (WSPF) in Tamil Nadu, India
- Cooling-as-a-service in a Colombian commercial building
- African Parks and the Wyss Foundation
- Municipal Waste-to-Energy Project in Belgrade, Serbia, with MIGA Guarantees and IFC Financing
- Funding modern water access in Bandar Lumpung, Indonesia
- Alberta's Renewable Electricity Program
- Bloomberg American Sustainable Cities
- Dublin Waste-to-Energy

Further resources:
- https://netzerocities.eu/wp-content/uploads/2023/11/D7.1-City-climate-finance.pdf

- https://documents1.worldbank.org/curated/en/099041224090039327/pdf/P17612810871700531ae091b1c089264caf.pdf
- https://netzerocities.eu/wp-content/uploads/2022/08/D7.1-City-climate-finance-landscape-barriers-and-best-practices-in-city-climate-finance-V2.pdf

9. Infrastructure and Specialist Funds

Definition:
Infrastructure and specialist funds are investment vehicles that finance large-scale infrastructure projects, often with a strong emphasis on sustainability, low-carbon development and climate resilience. They may be privately managed, publicly sponsored, or structured as blended vehicles that combine public and private capital. For urban projects, these funds provide targeted long-term capital for initiatives such as renewable energy, urban transport, water management and waste systems. These funds also bring expertise in project structuring and risk management, enhancing the feasibility of complex initiatives. They play a critical role in bridging funding gaps by leveraging private and institutional investments to support cities in achieving their climate goals while addressing long-term infrastructure needs.

***Examples of stakeholders*:**
- Connecting Europe Facility (CEF)
- Global Infrastructure Facility (GCF)
- Fondi Italiani per le Infrastrutture (F2i)

Examples for financial instruments where stakeholder provides finance:
- City climate and green funds
- Revolving funds (revolving credit facilities)
- Green investment funds
- Currency exchange funds
- Infrastructure debt funds
- Commercial (non-concessional) loans
- Syndicated loan
- Term loans
- Project level market rate debt
- Partial or full credit guarantee
- Loan loss reserve (LLR)
- Climate Adaptation Notes (CAN)
- Debt for climate swaps and debt for nature swaps
- Municipal bonds
- Green bonds
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- Climate bonds (climate mitigation and climate resilience bonds)
- Sustainable bonds (or sustainability bonds)
- Project bonds
- General obligation bonds (GO bond)
- Sustainability linked bonds (SLB)
- Mini bonds
- Revenue bonds
- Catastrophe bonds (CAT bonds)
- Social impact bonds (SIBs)
- Environmental impact bonds (EIBs)
- Private equity
- Green equity
- Equity futures

- Project level equity
- Yieldcos
- Pooled finance
- Asset-based securities (ABS) or green securitization

***Case studies*:**
- BABLE Solutions: Smart Cities, EUROPE
- Cooling-as-a-service in a Colombian commercial building
- Guaranteed loans from the Lithuanian Energy Efficiency Fund
- Funding modern water access in Bandar Lumpung, Indonesia
- Porto Maravilha urban regeneration project in Rio de Janeiro, Brazil
- Investment in renewable energy by Norway's sovereign wealth fund

Further resources:

- https://netzerocities.eu/wp-content/uploads/2023/11/D7.1-City-climate-finance.pdf
- https://www.thecommonwealth-ilibrary.org/index.php/comsec/catalog/download/303/300/2493?inline=1
- https://www.greenclimate.fund/project/fp205

10. Insurance Companies

Definition:
Insurance companies provide risk transfer and risk reduction mechanisms through insurance products that help municipalities manage the financial impacts of climate-related events. In the context of climate finance, they offer instruments such as catastrophe bonds or insurance pools to address risks from flooding, extreme heat, and other climate hazards. These instruments not only provide financial protection and rapid recovery funding after disasters but also incentivise investment in resilient infrastructure and climate adaptation measures to reduce long-term exposure to climate risks. Municipalities can act as insurance consumers, purchasing policies like parametric insurance, and they can also collaborate with insurers to design resilience-linked insurance products, where premiums are reduced based on investments in climate adaptation measures.

***Examples of stakeholders*:**
- AXA
- Allianz
- Zurich Insurance Group
- Swiss Re

Examples for financial instruments where stakeholder provides finance:
- City climate and green funds
- Revolving funds (revolving credit facilities)
- Green investment funds
- Currency exchange funds
- Partial or full credit guarantee
- Loan loss reserve (LLR)
- Risk insurance products

***Case studies*:**
- New Zealand's national CAT bonds

Further resources:
- https://www.climatepolicyinitiative.org/wp-content/uploads/2021/10/Building-Climate-Resilience-in-Cities-Through-Insurance.pdf

11. Private companies/private investors

Definition:
Private companies and investors provide essential funding, expertise, and innovative solutions. They engage through mechanisms such as public-private partnerships (PPPs), direct investments, green bonds, and philanthropic contributions. To manage risk and enhance project viability, private actors often leverage instruments like credit guarantees and blended finance. Their involvement not only brings financial resources, but also innovation by introducing advanced technologies like smart grids or electric mobility solutions. However, regulatory barriers, policy uncertainty and governance challenges can limit their participation. To attract and sustain private investment, municipalities can focus on strengthening policy predictability, improving transparency, and developing bankable, investment-ready project pipelines. Clear procurement processes, co-financing strategies, and consistent long-term climate planning also play a critical role in attracting private finance.

***Examples of stakeholders*:**
- ENGIE
- E.On
- Iberdrola
- Veolia
- Alstom

Examples for financial instruments where stakeholder provides finance:
- Taxes (property or business tax)
- Tax abatements for positive action
- Tax or rebates on negative development aspects
- Tax-line financing for clean energy and energy efficiency measures
- Charges and pricing for actions and services
- Land banking and land readjustment
- Building rights and planning permits
- Development charges
- Land sales or auction
- Land or infrastructure asset leasing
- Tax or fee-based land value capture
- Development-based land value capture
- City-based emissions trading systems (ETS) and carbon markets
- Carbon credits from carbon markets (international or regional)
- Nature-based and biodiversity credit mechanisms
- Philanthropic funds
- Commercial (non-concessional) loans
- Interest-free loans
- Syndicated loan
- Term loans
- Project level market rate debt
- Contracts for difference (CfD)
- Municipal bonds
- Green bonds
- Blue bonds
- Climate bonds (climate mitigation and climate resilience bonds)

- Sustainable bonds (or sustainability bonds)
- Project bonds
- General obligation bonds (GO bond)
- Sustainability linked bonds (SLB)
- Mini bonds
- Revenue bonds
- Catastrophe bonds (CAT bonds)
- Social impact bonds (SIBs)
- Environmental impact bonds (EIBs)
- Project level equity
- Yieldcos
- Concessions projects
- Privatization
- Sell to a private partner and leaseback
- Project finance (Special Purpose Vehicle)
- Leases and affermage contracts
- Management and 'operation and maintenance' contracts
- Simple private contracting model
- Power purchase agreements (PPA) for clean energy
- Pay-as-you-save (PAYS)
- Energy Performance Contracts (EPC)
- Energy upgrade financing schemes (Energy Efficiency Obligation Scheme (EEOS))
- On-bill financing (OBF) or on-bill repayments (OBR)
- Operating lease finance
- Hybrid models for purchase and lease of assets
- As-a-service' models
- Internal contracting
- Vendor Finance
- Model with forfaiting and waiver of defence
- Pooled procurement
- Pooled finance
- Aggregation platforms
- Asset-based securities (ABS) or green securitization
- Sponsorship and donations
- Public-private payment for ecosystem service (PES) schemes
- Stand-alone voluntary payment for ecosystem service (PES agreements between buyers and sellers)

***Case studies*:**
- Residential energy efficiency instruments in Lithuania
- Cape Town Green Bond
- Contribution of carbon credits to pay for green transport improvements in Bucharest, Romania
- Stormwater credit trading program
- BABLE Solutions: Smart Cities, EUROPE
- Tax-line financing for energy efficiency with Property Assessed Clean Energy (PACE) Program in the USA
- Pooled procurement for purchasing e-buses for multiple operators in Santiago, Chile

- The Warehouse for Energy Efficiency Loans (WHEEL) aggregation platform for energy efficiency financing in cities in the USA.
- Leasing model for electric buses and charging infrastructure in Shenzhen, China
- Cooling-as-a-service in a Colombian commercial building
- Climate bond financing adaptation measures in Paris
- Mayoral Community Infrastructure Levy in London, UK
- Indonesia's Sovereign Blue Bond
- Province of Ontario's Green Bond Program
- Miami forever Bond
- Gothenburg Green Bonds
- Public–private partnership for a new flood-proof district in Bilbao
- Vrijburcht: a privately funded climate-proof collective garden in Amsterdam
- Mix of private and public funding to adapt Malmö's new harbour district
- The economics of managing heavy rains and stormwater in Copenhagen
- Revolving energy saving fund Litomerice, Czech Republic
- Risk guarantee to enable the public-private partnership for the Kigali Bulk Water Supply Plant in Rwanda
- LEMON Project
- Dublin Port Headquarters
- EPCs in the Dolomites
- Energy Efficient Mortgages Action Plan (EeMAP): green mortgages in the European Union to incentivise energy efficient homes
- Municipal Project Finance in the Municipality of Rustenburg
- Open District Heating in Stockholm, Sweden
- EEA grants supporting the city of Bratislava (Slovakia) to implement climate mitigation and adaptation measures
- Fiji's Sovereign Green Bond
- Betterment levies for urban infrastructure financing of Alfonso Lopez Plaza in Manizales, Colombia
- Land value capture for the Sabarmati Riverfront regeneration in Ahmedabad, India
- Land Value Capture in Quito, Ecuador
- Nature restoration in Freetown, Sierra Leone
- Funding modern water access in Bandar Lumpung, Indonesia
- Public-bike-sharing network in Bogotá, Colombia
- Land Value Capture Along the Outer Ring Road in Hyderabad, India
- Ngakute Nanbu land readjustment project
- Porto Maravilha urban regeneration project in Rio de Janeiro, Brazil
- Alberta's Renewable Electricity Program
- New York City Housing Development Corporation's Sustainable Development Bonds
- Warrington Borough Council Investing in Renewable Energy with Community Municipal Bonds

Further resources:

- https://www.c40knowledgehub.org/s/article/How-cities-can-attract-private-finance-for-climate-action?language=en_US
- https://openknowledge.worldbank.org/entities/publication/56bd01a9-4aea-482d-a89a-c5b30b13becb

12. Communities and individuals

Definition:
Private citizens and communities play an important role in urban climate finance by investing in climate-friendly technologies, such as electric vehicles, solar panels, or energy-efficient home upgrades, and contributing to projects through crowdfunding. Their involvement not only mobilises local funding but also drives demand for green solutions and builds public support for climate action. Communities and individuals can also participate as investors in financial instruments such as green municipal bonds, community shares, or even private equity funds that support climate infrastructure and local sustainability projects. Municipalities can encourage broader participation by offering incentives, such as tax breaks, rebates, subsidies, or grant programs, and by creating opportunities for community co-ownership or citizen engagement in climate planning. However, this type of funding may have limitations, including insufficient scale for initiatives requiring large investment and administrative complexity in managing small contributions.

***Examples of stakeholders*:**
- Local citizens or community led initiatives (e.g., Bürgerwerke (DE) energy community) or crowdfunding platforms (e.g., Abundance Investment or Lendahand)

Examples for financial instruments where stakeholder provides finance:
- Tax-line financing for clean energy and energy efficiency measures
- Charges and pricing for actions and services
- Land banking and land readjustment
- Building rights and planning permits
- Development charges
- Land sales or auction
- Land or infrastructure asset leasing
- Philanthropic funds
- Community funds
- Green bonds
- Blue bonds
- Climate bonds (climate mitigation and climate resilience bonds)
- Sustainable bonds (or sustainability bonds)
- Project bonds
- General obligation bonds (GO bond)
- Sustainability linked bonds (SLB)
- Mini bonds
- Revenue bonds
- Catastrophe bonds (CAT bonds)
- Social impact bonds (SIBs)
- Environmental impact bonds (EIBs)
- Energy Performance Contracts (EPC)
- Energy upgrade financing schemes (Energy Efficiency Obligation Scheme (EEOS))
- On-bill financing (OBF) or on-bill repayments (OBR)
- As-a-service' models
- Crowdfunding

- Sponsorship and donations
- Stand-alone voluntary payment for ecosystem service (PES) agreements between buyers and sellers
- Microfinance
- Microcredit
- Micro insurance
- Micro leasing
- Micro savings

***Case studies*:**
- Miami forever Bond
- Ghent crowdfunding platform realising climate change adaptation projects
- Vrijburcht: a privately funded climate-proof collective garden in Amsterdam
- Dublin Port Headquarters
- Energy Efficient Mortgages Action Plan (EeMAP): green mortgages in the European Union to incentivise energy efficient homes
- EEA grants supporting the city of Bratislava (Slovakia) to implement climate mitigation and adaptation measures
- Nature restoration in Freetown, Sierra Leone
- Land Value Capture Along the Outer Ring Road in Hyderabad, India
- Warrington Borough Council Investing in Renewable Energy with Community Municipal Bonds

Further resources:

- https://www.climatehub.si/en/climate-resilience/innovative-funding-schemes/crowdfunding/
- https://citiesclimatefinance.org/financial-instruments/instruments/crowdfunding