

HANDBOOK FOR POLICY MAKERS

# Finding the Finance

## Financing Climate Compatible Development in Cities

Lisa Junghans & Lukas Dorsch

With contributions from  
Arne Brandschwede & Robert Sakofski



## Brief Summary

Cities are hubs of economic growth and innovation, rising emissions and significant climate change vulnerability. With the urban population expected to grow by an additional 3 billion people by 2050, innovative approaches are necessary to build climate compatible cities and overcome fossil-fuel based urban economies. While political will for transformative action is imperative, so are the financial means to develop and realise those new urban areas.

This publication presents a number of financing sources that are available for cities to match their needs in translating low carbon and climate resilient development plans into action. It provides insights on how local governments can raise funding locally and gives an overview of the international climate financing landscape that cities can access.

The role of cities in combating climate change is vital. By accessing the financial resources out there they can become pioneers of change, exemplifying transformative change.

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### Authors:

Lisa Junghans & Lukas Dorsch

With contributions from Arne Brandschwede and Robert Sakofski

### Layout:

Carlo Müller

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Germanwatch e.V.

Office Bonn:

Kaiserstr. 201

D-53113 Bonn

Phone +49 (0)228 / 60 492-0, Fax -19

Office Berlin:

Stresemannstr. 72

D-10963 Berlin

Phone +49 (0)30 / 28 88 356-0, Fax -1

Internet: [www.germanwatch.org](http://www.germanwatch.org)

E-mail: [info@germanwatch.org](mailto:info@germanwatch.org)

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# Acronyms

<b>ACCCRN</b>	Asian Cities Climate Change Resilience Network	<b>IDB</b>	Inter-American Development Bank
<b>ADB</b>	Asian Development Bank	<b>IFC</b>	International Finance Corporation
<b>AF</b>	Adaptation Fund	<b>JICA</b>	Japan International Cooperation Agency
<b>AFD</b>	Agence Française de Développement (French Development Agency)	<b>KfW</b>	Kreditanstalt für Wiederaufbau (German Development Bank)
<b>AfDB</b>	African Development Bank	<b>LDCF</b>	Least Developed Countries Fund
<b>AusAid</b>	Australian Agency for International Development	<b>MDBs</b>	Multilateral Development Banks
<b>BMZ</b>	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (German Ministry for Economic Cooperation and Development)	<b>NADB</b>	North American Development Bank
<b>CDIA</b>	Cities Development Initiative for Asia	<b>NGO</b>	Non-Governmental Organization
<b>CDKN</b>	Climate and Development Knowledge Network	<b>PoA</b>	Programme of Activities
<b>CDM</b>	Clean Development Mechanism	<b>PPCR</b>	Pilot Program for Climate Resilience
<b>CIFs</b>	Climate Investment Funds	<b>REDD+</b>	Reducing Emissions from Deforestation and Forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
<b>COP</b>	Conference of Parties	<b>SCCF</b>	Special Climate Change Fund
<b>CTF</b>	Clean Technology Fund	<b>SCFs</b>	Strategic Climate Funds
<b>DFID</b>	Department for International Development (United Kingdom)	<b>SILs</b>	Specific Investment Loans
<b>DPL</b>	Development Policy Lending	<b>SPCR</b>	Strategic Program for Climate Resilience
<b>EPC</b>	Energy Performance Contracting	<b>SREP</b>	Scaling Up Renewable Energy in Low Income Countries Program
<b>FIP</b>	Forest Investment Program	<b>TAP</b>	Transformative Actions Program
<b>GCF</b>	Green Climate Fund	<b>TIF</b>	Tax Increment Financing
<b>GEF</b>	Global Environmental Facility	<b>UN-Habitat</b>	United Nations Human Settlements Programme
<b>GHG</b>	Greenhouse Gases	<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>GIB</b>	Global Infrastructure Basel	<b>USAID</b>	United States Agency for International Development
<b>GIS</b>	Geographic Information System	<b>WBG</b>	World Bank Group
<b>GIZ</b>	Deutsche Gesellschaft für Internationale Zusammenarbeit		
<b>ICLEI</b>	Local Governments for Sustainability		

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# 1 Introduction

Climate change and urbanisation are two megatrends of the 21<sup>st</sup> century. Cities are both drivers of climate change and at the same time in the front row, experiencing its impacts. Their mandate to act is indisputable. Putting cities in the driving seat to act presents a window of opportunity to shape urban developments in a climate compatible fashion:

- There are estimates that 60% of the area projected to be urban in 2030 is yet to be built - a gateway for climate resilient and low carbon development.
- Decisions on urban planning and design made today will pave the way for a city's appearance and its functions for the next 50 to 100 years. Climate friendly cities of tomorrow must avoid the lock-in of a traditional fossil-fuel based urban economy.

Translating climate action from the level of international negotiations to on-the-ground realities in cities is a very recent development of the past one to two decades. While local leaders in cities around the world are familiar with urban development challenges and have experience in addressing them, tackling climate change goes beyond their traditional mandate, often overwhelming their budgets and capacities.

With the looming climate challenges, international support for addressing those challenges has been growing. New funds and institutions have been set up to provide financial support and capacity building to local authorities. At the same time, a number of countries have been setting up funding windows for their cities to access financial resources for low carbon and climate resilient projects. Furthermore, various local authorities have introduced innovative measures, raising funds for adaptation and mitigation projects locally.

The following chapters of this publication will provide insights into two of those funding sources - international and local funds. They are aimed at helping local authorities to tap into new sources of climate financing in order to translate plans into action. The national dimension is not part of the publication because it very much depends on governmental set-ups and national contexts.

Realising a city's low carbon and resilience plans is very site and city specific. While it is a task for local authorities to identify, prioritise and plan adaptation and mitigation measures, this publication aims to support them in finding the most useful financing scheme(s). For an implementation that paves the way towards a low carbon and climate resilient development the authors want to stress the importance of taking the interests and concerns of the urban poor into account. Integrating the voices of those lower income neighbourhoods does not only yield direct benefits for those households but has a much larger effect on the city's success of a holistic transformation towards a low carbon and climate resilient development.

While the number of funding schemes is vast this publication focuses particularly on those that can directly relate to climate change measures. At the same time many cities and local governments around the world are certainly trialling other innovative financial approaches or have been using a system for years. The authors encourage those with such experience to share their insights and inspire other cities around the world to follow. Given that it is always in the hands of local governments, their set-up and political will, to introduce financing measures, an adjustment to local contexts and structures will always be necessary.

This publication is part of a project, financially supported by CDKN and aims to support local authorities in accessing climate financing for climate compatible development actions in their cities. The concept of climate compatible development, frequently used in this publication, stands for minimising the harm caused by climate impacts, while maximising the many human development opportunities presented by a low carbon and climate resilient development (CDKN 2010).

## 2 The Local Level

For cities to move towards a sustainable and transformative low carbon and climate resilient development, a steady financial basis is vital. Without extra financial means that have a strong and long-lasting basis cities will not be able to address the challenges posed by climate change. Accessing funding from local sources can provide a sustainable base. Financial revenues arising from taxes or through innovative partnerships can yield a stable and socially acceptable source of income for the local government. For each of the instruments explained in this chapter, a case study example illustrates its practicality and feasibility.

### 2.1 Internal Revenue Sources

Local governments can raise financial resources in their cities in a number of ways without depending on external support from third party investors. This includes options such as taxes, user fees as well as instruments such as intracting. Raising sources of revenue locally has the clear benefit of fostering municipal autonomy and accountability. However, it requires political will, strong administrative structures and the necessary knowledge to implement and monitor those actions.

#### 2.1.1 Taxes

**DEFINITION**

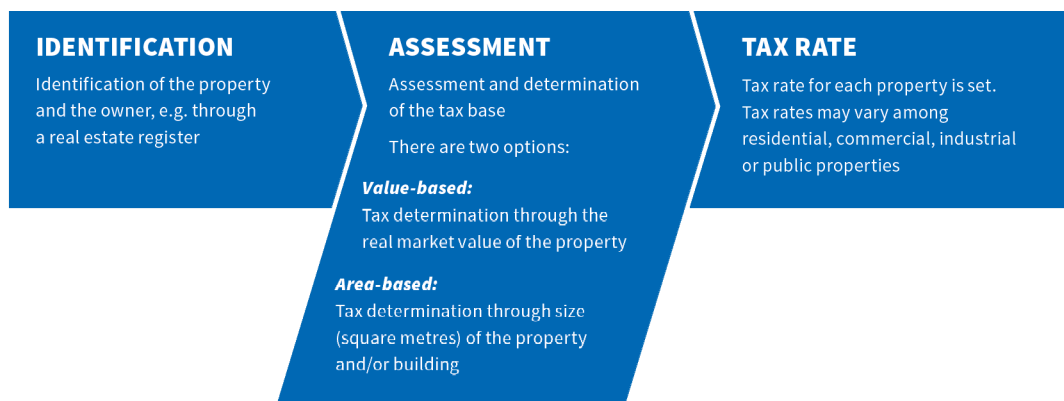
The primary purpose of taxes is to raise revenue which can be spent on general (local) governmental services. The most common types of taxes on the municipal level are property taxes.

The most common revenue for local governments stems from taxes that can be designed according to the needs of a city. To be most effective taxes should be easy to administer locally, be imposed on local residents and companies, and not lead to competition between different subnational governments or between the subnational and national government (Bird 2001).

Revenues for community goods and services

**Property tax** is a common instrument in almost all municipal governments worldwide. It relies on the fact that property (land and buildings) is immovable and thus cannot respond to changing tax rates. Figure 1 explains the basics of a typical property tax.

Figure 1: Implementation of a property tax



Source: Adapted from UN-Habitat 2009, UN-Habitat 2008

In most cities property taxes are used to fund local services such as roads and rubbish collection as well as neighbourhood parks (Fischel 2001, UN-Habitat 2009). However, it is to note that the overall financial resources arising from property tax do not automatically increase over time as property values respond very slowly to external economic changes. Generally, property tax fosters local autonomy (UN-Habitat 2009).

The principle of equity is central to any discussion about tax design. It should be fair, consider lower-income households’ financial capacities and be designed in a progressive fashion.

Besides taxing property directly there is also the possibility of taxing land. This has the advantage of providing "owners with the incentive to develop and manage the property to its most profitable use" (Mainelli/von Gunten 2015). This in turn counteracts urban sprawl as land owners can invest in several buildings while the tax stays the same. Furthermore, it can be valuable from an energy efficiency perspective. To date however, land value taxes are implemented to a much lesser extent than property taxes (Merk et al. 2012).

Another type of local tax revenue stems from **income taxes**. In the majority of countries, this type of tax is established by the national government. However there are different ways that a local government can also set-up an income tax (UN-Habitat 2009). While income tax always bears the risk of excessive local tax increases to the benefit of the local government it also varies with economic upturns and downturns (Lotz 2012, UN-Habitat 2009). Table 1 lists a few more options for tax revenues.

**Table 1: More tax options**

TYPE OF TAX	ADVANTAGES / DISADVANTAGES
<p><b>Corporate Income Tax</b> Corporate income tax is levied on corporations’ earnings</p>	<p>While it can increase local revenues, the additional tax burden for corporations may lead to avoidance by moving to another city.</p>
<p><b>Payroll Income Tax</b> The payroll income tax is levied on employees’ income.</p>	<p>While it is easy to administer it can act as a barrier to employment.</p>
<p><b>General Consumption Tax</b> A tax on consumer goods and services.</p>	<p>It provides an elastic source of revenue but at the same time bears the risk of consumers buying the good and services elsewhere.</p>

Source: Adapted from UN-Habitat 2008, UN-Habitat 2009

**LIMITATIONS**

It requires well-functioning administrative structures and an up-to-date real-estate-register. Particularly fast growing cities can lag behind here. In this regard large unplanned informal settlements that are not controlled by local authorities as well as limited land rights lead to tax losses (Bird 2001, Vaggione 2013).

Given its limited volume, a property tax cannot finance cost-expensive social expenditures such as health care, education or social welfare (UN-Habitat 2009).



## A Property Tax in Bangalore, India

Bruhat Bangalore Mahanagara Palike (BBMP), the administrative body responsible for civic and infrastructural assets of the greater Bangalore metropolitan area, initiated a property tax reform in 2007. Following an area based approach, the tax base was determined based on the value per square foot depending on the location of the property and on the cost of construction. Six value zones within the BBMP jurisdictions were established. The tax rate was set at 20% for residential and 25% for non-residential units. The BBMP introduced an incentive for early payment in the form of a 5% discount and a penalty of 2% for late payment. After coming into force, the property tax income almost doubled within a year. The reason for this was that several properties fell into higher value zones. To identify properties BBMP used a simple but effective GIS mapping method, enabling the complete inventory of properties in the municipality to be assessed.



### 2.1.2 User Fees

#### DEFINITION

User fees are levies charged for particular goods or services. The primary purpose of user fees is not to raise revenue but to regulate activities and services such as climate friendly behaviours (Mueller 2004).

Compared to a tax which is charged generally, user fees can be employed for funding services for specific beneficiaries while nonpayers are excluded (Emmerson Farish 2006, World Bank 2010). Residents will consume the services or goods as long as their value is equal or greater than the cost of provision (Deweese 2002). While a user fee can incentivise residents to use resources in an efficient manner, it discourages overconsumption, waste generation and polluting behaviours (Bird and Tsiopoulos 1997).

**Incentivising climate friendly behaviour**

Taking into account the needs of the urban poor, for certain goods or services, there is the option to provide a particular proportion or quantity free of charge or at a subsidised price for lower-income households. Such pricing structures may also be applied to avoid discriminating against low users.

User fees and charges are most common for urban infrastructure services such as toll roads, parking spaces or water and electricity utilities. Implemented correctly, user fees in the transport sector

encourage the usage of public transport and non-motorised travel, reduce the amount of car traffic, and can ultimately lead to fewer transportation related emissions and air pollution (Mairnelli/von Gunten 2015). While the revenue serves as an important source of funding for delivery of the service, it is also used for maintenance and new infrastructure developments (Maier/Jordan-Tank 2014).

**LIMITATIONS**

There is the risk that the goods or services are either over or under priced which leads to exclusion or over consumption respectively (UN-Habitat 2009, Dewees 2002).

It is not an easy task to determine the exact price of goods or services. If the price is too high, acceptance problems may occur.

**Congestion Charge in London, UK**

The congestion charge is a user fee, levied on road users. Launched in 2003, it is charged on most motor vehicles and aims to reduce the high traffic flow in the central area and raise investment funds for London’s transport system. The fee varies by day, time and location. The standard charge is £11.50 per day for each non-exempt vehicle that travels within the zone. In its first ten years gross revenue reached £2.6 billion whilst reducing traffic by 10%.



**2.1.3 Development Charges**

**DEFINITION**

A development charge is a one-off levy on developers who are developing a new area. The development charge will be used by the municipality to build necessary infrastructure such as street lighting and sewage systems etc. - an ideal entry point for integrating adaptation / mitigation measures.

In order to generate funding for climate compatible development there is also the possibility of introducing development charges. Those charges require developers to pay for the cost of new infrastructure around the area of a new development.

**Making new development sites climate friendly**

For a long time developers have been required to pay for on-site costs at new development sites such as streets, street lighting, or pavements. Lately, municipalities have extended their responsibility to also pay for the off-site services associated with new developments such as streets, lighting, water and sewage systems, libraries, recreation centres, public transportation and schools (Merk et al. 2012).

While development charges do not generate long-term income flows, they can be a perfect entry point for climate compatible development, such as the installation of LED street lighting, the development of water retention areas, or the construction of public transportation systems.

Development charges require coherent planning regulation, capacities by the infrastructure provider, and the necessity to link new infrastructure to existing public systems (UN-Habitat 2013). The charge should differ depending on the location in order to reflect varying infrastructure costs in different areas (UN-Habitat 2009).

### **Development Charge in Shah Alam City, Selangor, Malaysia**

The city Shah Alam, a municipality close to Kuala Lumpur, introduced a development charge in 2010. The charge is not intended for entirely new developments but takes effect when existing properties face a change of use, density, plot ratio or an increase in floor area. In such cases developers/owners are charged a 30% fee of the increased capital value, i.e. on the difference in capital value before and after permission is granted. The development charge revenues flow into a state trust fund and are used for providing and improving infrastructure and facilities in the surrounding area, including roads, street-lights and public amenities. In 4 years the Shah Alam city council collected USD 850 000.



## 2.1.4 Tax Increment Financing

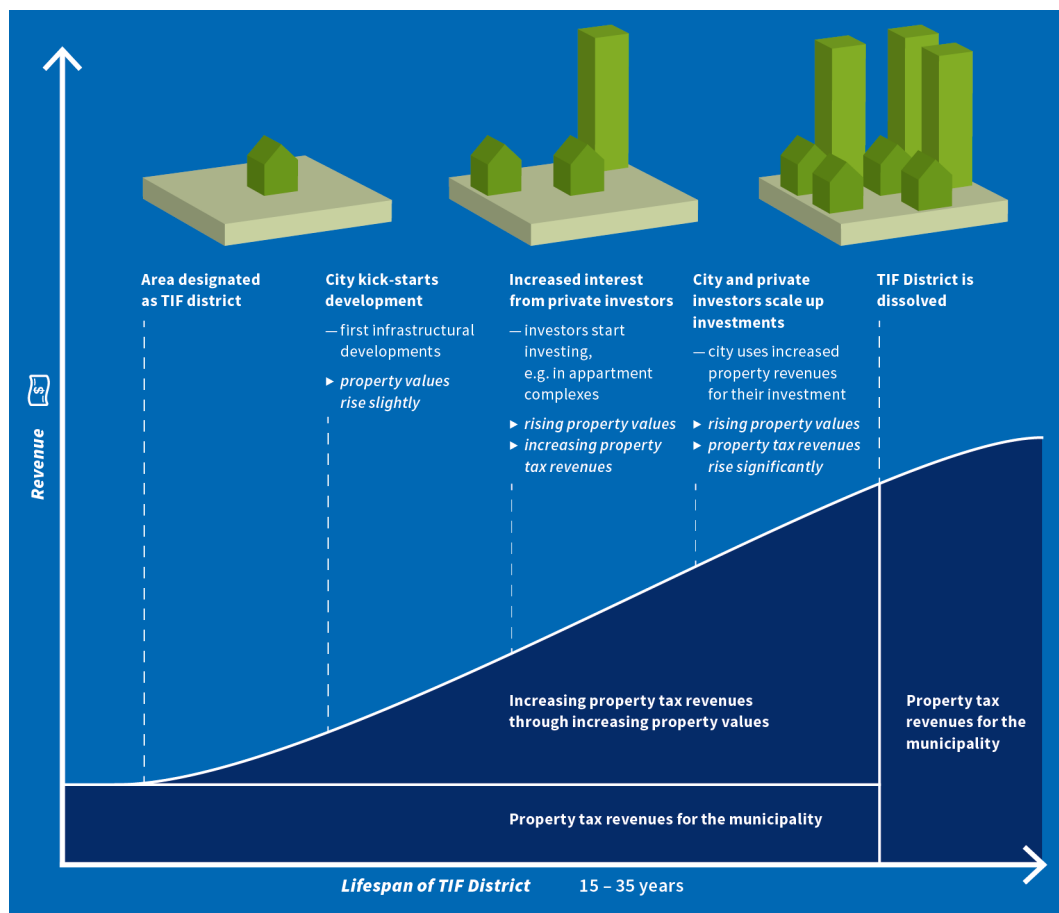
### DEFINITION

TIF is a very useful instrument to redevelop blighted areas in a climate friendly manner. It works by using a certain percentage of future property tax revenues as a means to develop the area. This takes place without increasing the property taxes for owners.

### Turning blighted areas into climate friendly neighbourhoods

In contrary to a development charge, which is a useful financing tool for new developments, tax increment financing (TIF) is particularly suitable for blighted or damaged areas that need redevelopment, for instance as a result of long-term neglect or a devastating flood event (Merk et al. 2012). Through its design, TIF can stimulate private and commercial investment in the blighted or damaged area. Figure 2 explains the composition and functions of a TIF.

Figure 2: Tax increment financing



Source: Own illustration

After the city has designated the blighted or damaged area as a "TIF District" it signs an agreement with the different city departments that normally receive the full property tax. This agreement contains a freeze of the current property tax revenue for the next 15 to 35 years. This means departments will, for the next 15 - 35 years, receive the same tax revenue as of the date of the agreement. The redevelopment agency then kick-starts the redevelopment of the TIF District by investing in some initial infrastructural facilities. This in turn attracts investors who will also invest in the TIF District. Both investments will increase the property values of the real estate in the TIF District

and thus lead to higher property tax revenues. Those increased ("incremental") property tax revenues will now flow into the hands of the redevelopment agency to re-invest in the TIF District. This reciprocal investment over the 15 - 35 years will ultimately lead to rising property tax revenues used for further redevelopment of the TIF District. After the lifespan of the TIF District has expired, the increased property tax revenues will be redirected to the original departments.

Generally, a city can use a TIF scheme to go "green". By requiring investors to adhere to specific environmental guidelines such as on insulation, greening, or regarding drainage local governments can create a new climate friendly neighbourhood.

While the TIF approach can have a very positive impact on the city and help to redevelop neglected areas into thriving districts, TIF can also lead to gentrification and thus drive away residents. In order to avoid this the city should ban rent increases for lower-income households and provide affordable housing for the original inhabitants.

#### LIMITATIONS

There is always uncertainty about whether formerly blighted areas have sufficient potential to increase property values as a consequence of the development and therefore may not be able to generate the predicted tax revenue (Merk et al. 2012).

There may be opposition to freezing property tax revenues for particular departments (UN-Habitat 2009).

Dye and Merriman (2006) found that TIF has a significant negative impact on commercial non-TIF areas that lack property value growth as a result. Hence, subsidising one part of the city threatens the prosperity of another part.

### Brownfield Redevelopment, Atlanta, USA

The large-scale project transformed a 138-acre site, which was formerly the Atlantic Steel Company's fabrication facility, into a mixed-use (residential, retail, entertainment and office) "smart growth" development. After designating the area a TIF District, the city of Atlanta used TIF bonds in combination with municipal funds and subsidies from the state and federal Environmental Protection Agencies and the Department of Transportation to kick-start redevelopment. Necessary works included clearing and grading the area, environmental remediation, construction and installation of utilities, streets, pavements, and parking facilities. Over the lifespan of the project TIF provided USD 167 million of the total USD 250 million required for all the necessary works. The rest of the funds needed came from the private sector. The redevelopment is now generating nearly USD 30 million in property taxes a year. The project has generated thousands of new jobs and generates hundreds of millions of dollars in total salaries.



## 2.1.5 Intracting

### DEFINITION

This instrument is a useful tool for lowering public buildings’ energy bills without external financiers. It works by financing the energy saving measures through energy bill savings. While start-up financing is necessary, the energy savings will cover those costs in the mid-term.

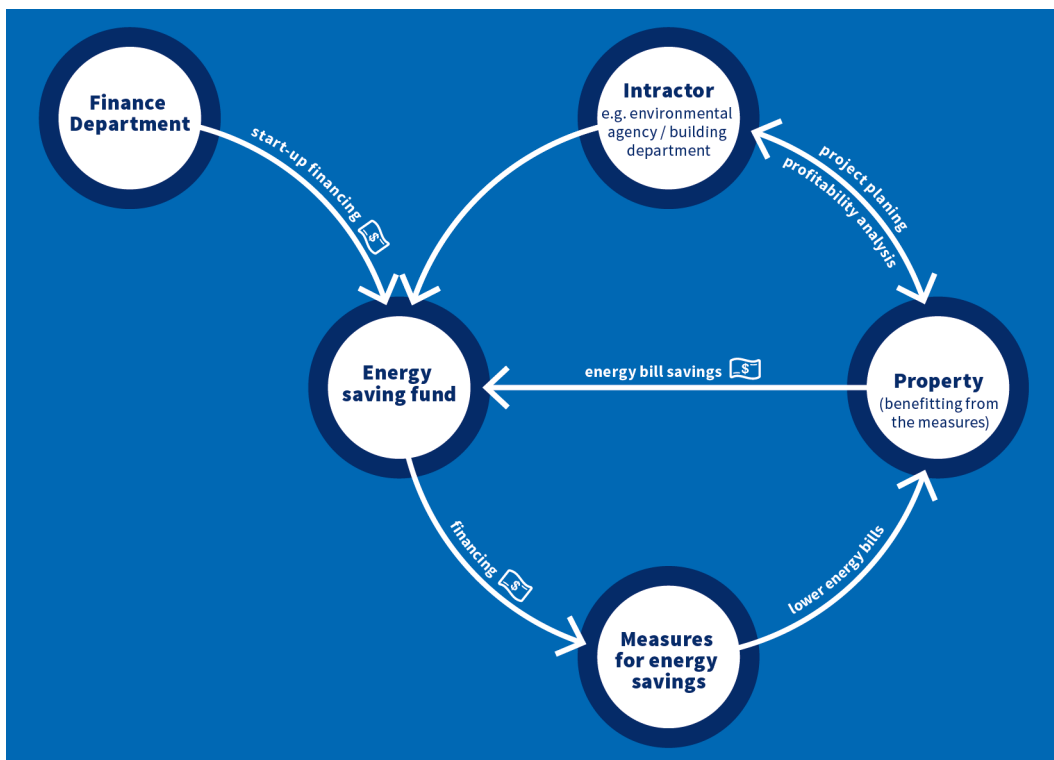
### Reducing energy bills

Energy saving measures and energy retrofits in public buildings such as hospitals, schools, day nurseries and sports facilities can have many advantages: lowering energy costs, reducing air pollution and contributing to mitigating climate change.

For cash-strapped local governments with limited financial resources there is the option of financing those energy retrofits through intracting (Figure 3). This measure involves an internal administration unit, the “intractor”, fulfilling the role of the service provider and organising measures for energy savings, determining achievable energy cost savings, calculating necessary investment costs, considering economic efficiency, and determining the payback period. The finance department then provides start-up financing for the energy saving measures or energy retrofit, e.g. through a dedicated fund.

The property in question then experiences lower energy bills and using the savings, pays back the start-up financing amount over a few years. Once the start-up costs have been fully paid-off, the property can then enjoy the reduced energy bills (Kind et al. 2013).

Figure 3: Involved parties and processes of intracting



Source: Adapted from Kind et al. 2013

Properly implemented, intracting is self-financing and generates profits after amortisation. Moreover even smaller energy saving investments can be made for which private investors would be reluctant to sign up.

#### LIMITATIONS

The most obvious limitation of intracting is the need for start-up financing that needs to be provided by the municipality.

Also, the local government bears the risks of the investment and has less incentive to structure the project efficiently compared to a private investor whose top priority is to produce profits (Seifried 2011).

### Intracting in Kiel, Germany

The intracting programme in Kiel, in northern Germany, has been promoting self-financed climate action since 1995. The city successfully implemented energy retrofits in schools that received start-up financing of approximately USD 280 000, annually, until 2003. Afterwards energy bill savings could be directly re-invested. By 2008 a total of more than USD 4 million had been invested in energy retrofits. Today, this results in annual savings of USD 438 000, equalling an amortisation period of about 9.5 years. Measures introduced include thermal insulation for school ceilings and attics and the updating of the lighting in a gymnasium.

## 2.2 External Revenue Sources

For urban transformation that focuses on climate compatible development, long-term investments will be vital. Most of the time this translates into a need for significant capital and specialised know-how. Self-financing options alone tend to be insufficient to meet those demands. This chapter will therefore focus on third-party financing opportunities that have the ability to provide the necessary financial means. Its greatest advantage is that it can realise large-scale projects before they generate the necessary revenues.

### 2.2.1 Energy Performance Contracting

#### DEFINITION

Through Energy Performance Contracting a local government can contract a company to install energy saving measures on public property. The company then receives a gradual payback that is financed by the reduced energy bills.

Energy Performance Contracting (EPC) can be of particular interest for climate compatible development in urban areas. Similar to intracting, it aims to improve energy efficiency in public buildings and is a performance-based contract (Merk et al. 2012). Generally, contracting is a type of third party financing and aims to open up energy saving potentials.

Reducing energy bills

Under an EPC scheme, a "contractor" invests in the design, construction and monitoring of energy saving instruments for a public building. Once the instrument is in operation, the contractor re-

ceives a share of the energy cost savings for an agreed timeframe, usually between 5 and 15 years. After the expiration of the contract all savings go to the city.

What makes such EPC schemes attractive is the savings guarantee. The annual revenues resulting from lower energy costs are legally binding and will be paid to the contractor over the agreed timeframe come what may. However, the contractor's remuneration is performance-based: If the energy savings are lower than expected, the difference is at the company's expense (guaranteed savings model). There is also the possibility to involve the municipality in the revenues resulting from the lower energy bills at an agreed percentage and over an agreed timeframe (shared savings model) (Kind et al. 2013).

#### LIMITATIONS

A trusting relationship between the local government and the contractor is prerequisite for a successful EPC, given that their partnership normally lasts between 5 to 15 years.

In addition, every contractor entering into an EPC aims to make a profit. This means that local governments need to be aware that by partnering with the private sector, they may be losing out on some revenues for the timeframe of that partnership.

## Energy Saving Partnerships in Berlin, Germany

In Berlin, Energy Saving Partnerships (ESPs) have been in place since 1996 aiming to save energy and cut costs. Typical measures include optimising heat generation, hot water preparation, ventilation technology, lighting and overall energy management. Under the ESPs, upfront investment, planning and installation of projects is carried out by private utility providers. Until today, 27 ESPs have been set-up with contracts running from 8 to 14 years. While the total costs for the installation add up to approximately USD 57 million, cost savings have amounted to about USD 13 million a year.





## 2.2.2 Green Bonds

### DEFINITION

A green bond is a type of loan, which local governments can use to finance "green" projects that are contributing to a low-carbon, climate resilient economy. Green bonds provide cities with the opportunity to realize up-front investment costs e.g. start-up or kick-off costs that relate to intracting or TIF.

Green bonds are a suitable instrument for raising funds for local climate and environmental friendly investments. This can range from energy efficiency, parks development, sustainable infrastructure, renewable energy, etc. (Mainelli/von Gunten 2015). Once the local government issues green bonds it is obliged to pay back the amount lent to the creditors within an agreed period of time and interest rate. Creditors can range from individuals and institutions, to pension funds and insurance companies.

Generating start-up  
finance

Generally, there are two different types of bonds: general obligation bonds and revenue bonds. For revenue bonds there is a direct link between the revenues that the "green" project generates and the repayment of the bond. General obligation bonds on the contrary are paid back through taxes or other revenues that are not directly linked to the "green" project.

To date clear standards for what constitutes green bond projects are lacking – this creates a gateway for "greenwashing" (Inderst et al. 2012). As the Climate Bonds Initiative is currently developing such standards for different sectors, local governments should take them into account when choosing their projects.

While green bonds can be issued by different kinds of government and corporate levels, the majority are announced by multilateral development banks like the World Bank or the European Investment Bank.

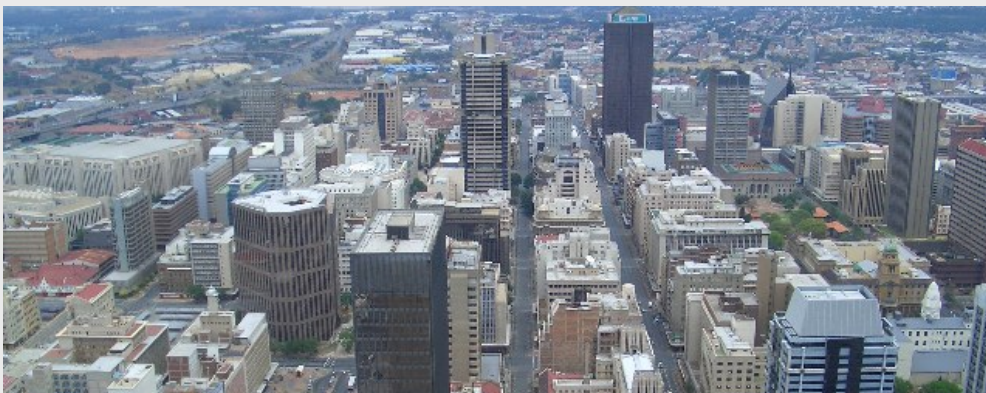
Today green bonds at a city level have become a key part of the market, accounting for approximately USD 5 billion in 2014. Green university properties and sustainable water projects made up the majority of the green city bond announcements in 2014.

### LIMITATIONS

Creditworthiness is a fundamental requirement for local governments to access green bonds. Often cities in developing countries are lagging behind here. Tools such as partial guarantees, subordinate debt and insurances are options for overcoming this.

## Green City Bonds in Johannesburg, South Africa

In June 2014, Johannesburg was the first city worldwide to issue a green city bond, worth USD 143 million. The maturity is set at 10 years from 2014 to 2024. Johannesburg has a long-term BBB from Fitch Ratings, equalling a lower medium grade credit rating, which makes it more likely for investors to fund the city. The sale of the instrument was arranged by Standard Bank and sold to domestic investors with an interest rate of 10.18%. The bond was 150% oversubscribed which indicates the investors' interest and trust in the project. The proceeds of the bond will be used to finance sustainable low-carbon projects and conduct efficiency upgrades across four key areas of the city's infrastructure: power, water, parks and transport. This includes converting biogas to power, dual fuel busses, a solar geyser initiative, and other projects that reduce the city's greenhouse gas emissions.



### 2.2.3 Crowdfunding

#### DEFINITION

Crowdfunding is an alternative source of income for cities, bypassing the traditional private capital market. It is guided by the principle that citizens can voluntarily invest a certain financial amount into a proposed project. Crowdfunding is particularly suitable for funding small initiatives and ventures.

#### Creating public ownership

Using crowdfunding as a means to leverage resources has received wider public attention in the past years. The core idea is to receive funding for a project from a large and diverse pool of donors. Crowdfunding can be used as a single funding source or can be combined with private investment. While a direct financial return is an exception, donors often do receive a non-financial or symbolic return.

The market for crowdfunding grew by 60% between 2010 and 2012. Internet based platforms such as Kickstarter, Spacehive, and IndieGoGo are testament to the recent upturn of this funding source at the interface between microfinance and crowdsourcing (Gasparro in press, Davies 2014).

Crowdfunding can be an ideal way for local governments to engage with urban residents or small businesses. Once people understand that a certain project will benefit them, they may be willing to invest a small amount. However to ensure the success of a crowdfunding project, donor and citizen participation is critical.

### LIMITATIONS

Crowdfunding is less likely to be a suitable instrument to fund bigger infrastructure projects.

The majority of crowdfunding projects start via social media platforms. Not all urban residents may be familiar with those platforms as a tool for providing financial input and ideas for the project.

Also, crowdfunding may contribute to social inequality if public engagement is limited to certain social classes with access to the internet or with financial resources to spare.

## Liverpool Flyover, Liverpool, UK

In 2013, the initiative We Make Liverpool started a crowdfunding project with the objective to save a flyover, which the Liverpool City Council was planning to demolish. Through the online civic crowdfunding site Spacehive they engaged with local residents. After six months of crowdfunding they successfully raised £43 809, more than half of which was contributed by individuals. The remaining 42% was funded by four private businesses. The new project aims to turn the existing structure into an urban walk-/cycle way with trees and shops together with education and event programmes whilst also providing local businesses with space to expand their services.



## 2.3 Alternative Models

Whilst funding for low carbon and climate resilient actions can be raised through a number of internal and external revenue sources, there is a third possibility to realise them without tapping into those particular streams. Such measures include incentive schemes, such as bonus programmes and tax abatement, community-owned energy systems and mainstreaming climate compatible development in urban planning.

## 2.3.1 Bonus Programmes and Procurement

### DEFINITION

Bonus programmes work as incentives to encourage energy-savings.

#### Small measures can also make a difference

While previous chapters have outlined rather expensive ways to save energy for instance through energy retrofits, there is another option for how energy-related emissions can easily be reduced: either through the purchase of energy efficient, resource-saving or low-waste products as well as through economic incentives that can lead to behavioural changes.

Environmentally friendly procurement can be an attractive way for cities to reduce costs in the mid to long term. Among others this can include the use of recycled paper, the choice of detergent, computers, lamps, printers, company cars and even wall paint. While conventional products may seem cheaper at first, they are likely to bear significantly higher costs in the long run. Generally, life-cycle costs like acquisition, operation, maintenance and the disposal costs of a product within a given period of time tend to be lower for environmentally friendly products. However transparent cost and performance accounting is critical for determining the benefits.

Also, making use of economies of scale can reduce costs and emissions. If products and equipment are purchased for several departments at the same time, prices may be cheaper and shipping costs lowered. At the same time such bundled procurement processes can significantly lower administrative expenses and ultimately lower costs (Kind et al. 2013).

Furthermore, incentive schemes can help employees and municipal departments become sensitive to environmental and climate protection measures and energy and resource savings. An option here is to provide a financial return to departments that have saved energy. The financial return in this case would be a certain percentage of the amount saved, for instance 50% (Kind et al. 2013).

### **Fifty-Fifty-Programme in Königsfeld, Germany**

In 2003 Königsfeld, in southern Germany, introduced an economic incentive model to save energy in schools and day nurseries. The fifty-fifty-programme enables the properties to implement energy saving measures and in return receive a 50% share of the energy costs saved, in the form of a refund by the municipality. What makes this example special is that none of the measures implemented resulted in any significant expenditure. The optimization of heating system controls lowered gas consumption and the use of weights in older toilet models reduced water consumption. Within the first 8 years, energy consumption for heating dropped by 18%, electricity consumption by 15% and water consumption by 48%. This resulted in refunds totalling approximately USD 2100 for the 12 properties. Furthermore, CO<sub>2</sub>-savings amounted to approximately 83 tons compared to 2002. The project shows that small measures and behavioural changes can significantly contribute to lower energy costs and reduced greenhouse gas emissions.

## 2.3.2 Community-owned Energy Systems

### DEFINITION

Owned by the local residents and located on public grounds, community-owned energy systems can generate profits for both parties.

Community-owned energy systems are another way to encourage the installation of low or no-cost measures towards climate friendly development in municipalities. Under this scheme, the city provides spaces for the installation of renewable energy plants and then rents out those spaces. Subsequently, residents establish an operating-company, build the renewable energy plant and become co-owners. Once the plant is running, the residents receive a large share of the profit generated while the city usually gets a small share of the profit. Solar systems, wind farms, biomass power plants, and hydroelectric power stations are the most common community owned energy systems (Kind et al. 2013).

**Creating public ownership**

Generally, a city benefits from such an arrangement, be it through the small profit generated or the image of being a "green" city. Neither personnel resources nor technical know-how is needed since the municipality is responsible for neither the project planning nor the implementation. Furthermore, local residents are involved and thus help to build a good partnership with the local government (Kind et al. 2013).

### LIMITATIONS

This model has been tried-and-tested in German and Danish municipalities but not in developing countries. Possible shortcomings arise through high capital investment costs and if the local government and citizens lack knowledge about how to set up such arrangements. Essential knowledge and commitment is required right from the planning process through to the operational phase, including leasing the area, the order in which to construct the energy system, the choice of legal status and capacity to establish these.

## Hepburn Wind Project in Leonards Hill, Victoria, Australia

The cooperative, Hepburn Wind, is a community-owned wind farm, supported by the government of Victoria. It began generating energy in 2011 and comprises two individual wind turbines - supplied by REpower Systems AG - that are projected to produce energy for 2300 households. On the financial side, the 2000 members of Hepburn Wind contributed USD 9.8 million towards the overall costs which totalled USD 13.5 million. Additional funds were provided by bank debts and governmental grants. The wind farm is located on leased agricultural land. The electricity generated is delivered to the locals and sold to the retailer Red Energy with resulting profits belonging to members of Hepburn Wind. Furthermore, a proportion of the revenue goes to the Hepburn Wind Community Fund that endorses local sustainability projects with more than USD 1 million over the next 25 years. The projects show that strong and on-going community involvement can lead to enhanced local support for renewable energy generation.



### 2.3.3 Tax Abatement Schemes for Climate-friendly Development

#### DEFINITION

Tax abatement can be used to incentivise urban residents to contribute to, for instance, better storm water management in their city. For this residents receive a tax abatement for installing measures such as green roofs or neighbourhood ponds.

#### Involving residents in adaptation

Many cities worldwide charge owners of residential and non-residential properties for public expenses such as sewage disposal or storm water management. In times of changing rainfall patterns and erratic rainfalls evolving more often, existing sewage systems may be overwhelmed and flooded more frequently. To combat this, cities can introduce a tax abatement scheme that encourages property owners to develop their land in such a way that more water can be absorbed and thus produce less runoff. Measures for this include the greening of roofs, replacing asphalt surfaces with porous surfaces, rain gardens, basins and ponds, swales and downspout planters. While all of these measures contribute to less runoff water, often they also result in cooler inner-city temperatures as well as reduced pollution levels.

**LIMITATIONS**

It requires well-functioning administrative structures and an up-to-date real-estate-register that provides insights into whether surfaces are porous or nonporous. Particularly fast growing cities with large informal settlements are lagging behind here (Bird 2001, UN-Habitat 2013).

Tax abatement results in reduced gross income for a city in the short-term. Yet it is very likely to lead to cost reductions in rain water management in the long-term.

**Storm Water Management Programme in Philadelphia, Pennsylvania, USA**

The city of Philadelphia has created the Storm Water Management Incentives Programme (SMIP) and the Greened Acre Retrofit Programme (GARP) to reduce the city's storm water runoff and enhance the water quality in the region's watersheds. While SMIP provides grants to non-residential property owners for storm water retrofits, GARP provides grants to contractors or companies to build large-scale storm water retrofit projects across multiple properties. The funds for both programmes stem from the city's water department, who collect the charges for city-wide storm water management. Therefore, no additional source of funding is needed. Projects funded as part of the programmes include detention and retention basins, green roofs, porous paving and rain gardens. Once the storm water project is in operation, property owners receive credits that they can use for paying their normal storm water management charge.



**2.3.4 Mainstreaming Climate Compatible Development into Urban Planning**

Urban planning and design is a costly but traditional task for every local government. In order for a city to pursue a transition towards climate compatible development an obvious step is to mainstream low carbon and climate resilient development thinking into traditional planning activities. In the medium and long term, urban planning can unfold great potential in cities regarding cost-effective climate resilient and low carbon developments. If an adaptation, mitigation and sustainable urban development rationale is integrated in planning decisions and reflected in projects, additional costs for later adjustments can be prevented. For

**A broader climate narrative for urban planning**

example, potential future climate risks can be considered when new building areas are developed or new public spaces can be designed to function as flood zones. Even if such approaches only seem financially viable in newly developed areas, urban planners should be aware of co-benefits like the water drainage and heat island reduction capacity of green spaces as well as health benefits as this may allow them to tap into other departments' budgets.

However, there can be challenges regarding the capacity to institutionalise sustainability and to keep track of complex coherences (Sharma/Tomar 2010). The increase of accountability and transparency by means of informed public dialogues can play an important role in reconfiguring urban governance (Friend et al. 2014).



### 3 International Level

The last chapter has illustrated measures for how revenues for climate financing can be raised locally. Whilst this can foster a city's autonomy and thus enhance ownership and sustainability, the sheer scope of the investments needed to combat climate change make international support necessary and historically justifiable. For a transition towards a low carbon and climate resilient development often larger investments are needed to kick-off large-scale projects that can lead to transformative actions. Particularly for those interventions the international climate financing landscape becomes an important source of revenue. Besides several international climate funds and development banks, bilateral support as well as international philanthropic organisations can be a suitable source of funding for cities. Before delving into the details, Table 2 provides an overview of the different international finance options according to their type of support.

**Table 2: International financing instruments**

INSTRUMENT	INTERNATIONAL SOURCE
<b>Grants</b> No repayment necessary	Green Climate Fund, Adaptation Fund, Global Environmental Facility, Private Sources/Foundations, Urban Climate Change Resilience Trust Fund, Bilateral institutions, Sub-National Technical Assistance Program (Public-Private Infrastructure Advisory Faculty)
<b>Concessional Loans</b> Low interest rates/long repayment period	Clean Technology Fund, Multilateral Development Banks, Bilateral institutions (e.g. French Development Agency)
<b>Loans</b> Given on commercial basis	Multilateral Development Banks, Bilateral institutions (e.g. French Development Agency)
<b>Technical assistance</b> Ideas, knowledge, practices, technologies, or skills	Strategic Climate Funds, Multilateral Development Banks, Private Sources/Foundations, UN Habitat, bilateral institutions, Cities Climate Finance Leadership Alliance, Cities Development Initiative for Asia, Global Fund for Cities Development, Local Governments for Sustainability, Global Fund for Disaster Risk Reduction, Public-Private Infrastructure Advisory Faculty

### 3.1 International Climate Funds

International climate funds are an important source for financing climate compatible development. In the past however, cities have faced hardships in accessing climate financing from international climate funds as they require direct cooperation with national entities or development banks. Although some funds promote a direct access approach to funding, cities have rarely been able to receive direct funding. However, as the following section outlines, some potential opportunities for cities are evolving.

#### 3.1.1 Green Climate Fund

The Green Climate Fund (GCF) is likely to become the main instrument for public climate financing under the UNFCCC, channelling a large part of funding to assist developing countries in their miti-

gation as well as adaptation schemes. By declaring the "design and planning of cities to support mitigation and adaptation" as one of its initial result areas, the GCF indicates that cities play a critical role in combating climate change and will therefore need support on an international level, including from the GCF (GCF 2013).

Under the GCF, sub-national entities are also eligible to become accredited implementing entities, which is potentially a good way for cities to access funding directly. For this, the city will need to be nominated by the National Designated Authority or Focal Point. A challenge here is that cities often lack the fiduciary standards required for becoming an accredited implementing entity under the GCF. This however can be remedied by applying for the GCF's Readiness Programme that directly supports entities seeking accreditation in fiduciary standards management and other accreditation requirements.

An alternative way for cities to access climate financing from the GCF could be the set-up of a GCF implementing entity at a national level that has the mandate to directly support cities in their adaptation and mitigation schemes. This Urban Implementing Entity would have the knowledge required to provide support to cities, concerning the preparation of project concepts, channelling funding from the GCF to local governments, helping to disseminate lessons learnt and sharing knowledge between the different cities in the country.

#### FOR DETAILS

Further information can be found on the GCF website:

<http://www.greenclimate.fund> under "Ventures" → "Accreditation" and "Readiness"

### 3.1.2 Adaptation Fund

The Adaptation Fund (AF) has been operating since 2009 and has committed over USD 320 million to finance concrete adaptation programmes and projects in developing countries. To date, only two projects with an explicit urban focus have been funded. The main reason is that the AF cannot directly support local governments but funding needs to go through multilateral, regional or national implementing entities. To receive funding, projects have to be endorsed by the National Designated Authority and be submitted through the appropriate implementing entity. With regard to Tanzania and Honduras, the two countries with urban projects, the national and multilateral implementing entities respectively have chosen to apply to the AF for those projects.

#### FOR DETAILS

The full review criteria can be found at the AF website

<https://www.adaptation-fund.org/wp-content/uploads/2015/03/Review-Criteria-5.12.pdf>

### 3.1.3 Global Environment Facility

Small grants  
through community  
cooperation

The Global Environment Facility (GEF) has been an independent organisation since 1992. It is entrusted as the financial mechanism under the UNFCCC, including the **GEF Trust Fund**, the **Least Developed Countries Fund (LDCF)** and the **Special Climate Change Fund (SCCF)**. All three funds have in the past supported projects in urban areas.

Given that climate-resilient urban systems are part of the thematic programming priorities of GEF's sixth funding period, the opportunities for cities to access funding are likely to increase further

(GEF 2014). While USD 210 million has been allocated for supporting urban mitigation interventions, the GEF is directing USD 195 million for urban resilience projects through the LDCF and the SCCF (GEF n.d.). Furthermore, the GEF has launched a new **Sustainable Cities Integrated Approach Pilot** programme. Stocked with USD 150 million the programme aims to facilitate integrated sustainable and resilient urban design, planning and management by providing policy and governance support (GEF 2015). Although its participating cities have already been selected the programme may be extended in the next funding period (UN Habitat 2015).<sup>1</sup>

In order to draft a project proposal for receiving funding from the GEF Trust Fund, the LDCF or the SCCF, the national GEF Operational Focal Point needs to endorse the proposed concept. Eligible projects can then be sent to GEF agencies, including the World Bank, Multilateral Development Banks and UN organisations (Binsted et al. 2013). Generally, GEF funding cannot be made available to local governments directly but will have to go through a national government agency or multilateral institution.

The GEF also offers a Small Grants Programme providing grants of up to USD 50 000 to community-based organisations and non-governmental organisations. Cooperation with those stakeholders can be an alternative way for cities to access GEF funding for local projects.

#### FOR DETAILS

##### More information on the application criteria:

[www.thegef.org/gef/who\\_can\\_apply](http://www.thegef.org/gef/who_can_apply)

##### List of Focal Points:

[https://www.thegef.org/gef/focal\\_points](https://www.thegef.org/gef/focal_points)

##### List of GEF Agencies:

[https://www.thegef.org/gef/gef\\_agencies](https://www.thegef.org/gef/gef_agencies)

### 3.1.4 Climate Investment Funds

The Climate Investment Funds (CIFs) were set up in 2009 and have received a total USD 8.1 billion of pledges from a number of contributing countries. The projects and programmes financed by the CIFs are implemented by Multilateral Development Banks (MDBs) and provide resources for climate mitigation and adaptation to developing and middle income countries.

The **Clean Technology Fund** (CTF) under the CIFs is the largest international player in financing urban projects with a funding focus on middle income cities (Barnard 2015). Less than 10 % of CTF funding has been invested into cities in low-income countries (Barnard 2015). The thematic emphasis has so far been on urban transport systems, but also on other technological sectors such as energy. Transport and energy components as well as the combination with other loans and expected returns from the carbon market were part of many approved country investment plans (World Bank 2010). Generally local government stakeholders are not directly eligible for support by the CTF but need to cooperate with national government ministries (Binsted et al. 2013).

The **Strategic Climate Funds** (SCFs), the second pillar under the CIFs, focus on strategic support for designing programmes for climate resilience (PPCR, SPCR) and renewable energy (SREP) in

<sup>1</sup> The participating cities are: Brasilia, Recife, Gran Asuncion, Lima, Dakar, La Paz, Campeche, Xalapa, Vijayawada, Guntur, Mysore, Jaipur, Bhopal, Abidjan, Melaka, Johannesburg, Hue, Guiyang, Shenzhen, Ningbo, Nanchang, Beijing, Tianjin, and Shijiazhuang (GEF 2015).

selected pilot countries, including urban issues. It is possible for cities to integrate their interests in SCF-programmes, but again a strong collaboration with national governments and MDBs is a prerequisite for accessing the funds (World Bank 2010). Even the Forest Investment Programme (FIP) can include support for cities, as FIP-funding for REDD+ investments in Congolese cities (Kinshasa, Kisangani and Mbuji Mayi - Kananga) shows (Streck/Parker 2012).

### **New Busses for Bogotá, Colombia**

Bogotá, the capital of Colombia, was aiming to create a more sustainable transportation system. For this the city combined different instruments such as car-free days, enhanced bike lanes and the rearrangement of the bus system (Trans-Milenio). To reduce the GHG emissions of the new Bus-Rapid-Transit system a pilot fleet of hybrid and electric busses was supported by the Clean Technology Fund (CTF) with concessional loans of USD 40 million to leverage the higher initial investment costs for clean technology. The Inter-American Development Bank was the administrative agency, dealing with the application and approval process. The loans were executed by the state owned commercial Bank of foreign trade, Bancóldex. Both, the CTF and Bancóldex co-financed each electric bus, so that the total value of loans was doubled. The national state guaranteed the loan (IDB 2013).



## **3.2 Multilateral Development Banks**

The core mandate of Multilateral Development Banks (MDBs) is to financially and consultatively support economic and social development in developing countries. Their main financial instruments are long term loans, some of them being concessional loans. Several MDBs also offer grants mainly for technical assistance, consulting services and project preparation. Besides some MDBs have introduced special initiatives and funds that offer support for climate compatible development in urban areas. Additionally, MDBs often function as intermediaries for international and bilateral funding flows.

### 3.2.1 World Bank Group

The two main financial instruments of the World Bank are loans and credits from the International Bank for Reconstruction and Development as well as the International Development Association respectively. While **Specific Investment Loans** (SILs) fund the construction of physical and social infrastructure, **Subnational Development Policy Lending** (DPL) is an instrument that supports sector reforms through policy development and implementation as well as institutional capacity building. For SILs, local governments can apply through their national government agencies. To be eligible for Subnational DPL, entities must have "legislative autonomy and an independent budgetary authority immediately below the national level" (World Bank 2012). This may be a door for capital cities or other metropolitan areas to apply for funding.

Increasing creditworthiness can make a difference

In addition, the World Bank has special programmes that have a particular urban focus: The **Sustainable Cities Initiative** supports cities in Europe and Central Asia via capacity building and knowledge transfer. The **Eco2 programme** helps cities to enhance ecological and economic sustainability and functions as a platform providing practical, scalable, analytical and operational support. It also aims to build a global partnership among cities, academia, and development communities (World Bank 2012). Moreover there is the **City Creditworthiness Initiative** that offers hands-on learning programmes for city leaders to improve their financial performance and enhance their creditworthiness, a crucial issue for accessing investment flows. City Creditworthiness Academies are regularly offered and organised at central locations for many municipalities at once. Local governments should check if such events are offered in their region and potentially attend. Even without access to training programmes the experiences of other cities might be useful.

The **International Finance Corporation (IFC)**, specialised to support private corporations in developing countries, also has as Cities Initiative aiming to bring municipalities, utilities and private sector players together. The financial and advisory services offered include the strengthening of institutions and regulations, the improvement of infrastructure and environmental sustainability and the encouragement of skills and innovations as well as the expansion of financial access (IFC n. d.).

Another promising option for cities is the **Subnational Finance Programme** jointly set up by the World Bank and the IFC. In contrast to conventional funding this scheme allows direct access for cities for essential infrastructure investments. Besides municipal and regional governments and their service entities, subnational Public Private Partnerships are also eligible. Creditworthy entities get full access to financial instruments on a commercial basis. Additionally the programme offers help for the mobilisation of domestic resources as well as for capacity building and increasing creditworthiness (IFC 2012).

**FOR DETAILS****Sustainable Cities Initiative:**

<http://www.worldbank.org/en/region/eca/brief/sustainable-cities-initiative>

**Eco<sup>2</sup> cities:**

<http://www.worldbank.org/eco2>

**City Creditworthiness Initiative:**

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

**IFC Cities Initiative:**

[http://www.ifc.org/wps/wcm/connect/8bfdc50048b5bbfea84dfe6c57b0ebf6/Cities\\_factsheet\\_IFC.pdf?MOD=AJPERES](http://www.ifc.org/wps/wcm/connect/8bfdc50048b5bbfea84dfe6c57b0ebf6/Cities_factsheet_IFC.pdf?MOD=AJPERES)

**Subnational Finance Programme:**

<http://www.globalclearinghouse.org/infradev/assets%5C10/documents/Subnational%20Brochure%20CSF.pdf>

**Email address for questions about subnational finance:**

[subnationalfinance@ifc.org](mailto:subnationalfinance@ifc.org)

### 3.2.2 African Development Bank

Since 2011 the African Development Bank (AfDB) has followed an urban development strategy for economic growth and social development that takes into account the issue of climate resilience (AfDB 2011). The strategy consists of three pillars. It supports (1) the expansion of basic public infrastructure services and the public capacity for its maintenance, (2) the strengthening of municipal governance (transparency, anti-corruption, fiscal decentralisation, urban planning), and (3) private sector development (AfDB 2011). The AfDB provides finance to African national governments and private companies operating in regional member countries. For cities to access those funds a close cooperation with national government agencies is necessary.

### 3.2.3 Asian Development Bank

The Asian Development Bank (ADB) has an **Urban Operational Plan** for the years 2012 to 2020, with a "focus on improving planning and financing capacities" (ADB 2013). Traditionally the ADB works with member countries with their funding flowing through national budgets (DFI 2009). However, the ADB is aware of that stronger partnerships with local private and public stakeholders need to be established. Suitable funding modalities for local governments thus may evolve in the near future (ADB 2013). Along with the Sustainable Development Goals, the ADB also announced the doubling of its climate financing for Asia-Pacific to USD 6 billion by 2020, including city related issues (ADB 2015).

Furthermore, the ADB has a **Climate Change Fund** that among others supports clean energy, sustainable transport, low-carbon urban development as well as climate resilience. However, the total funding volume for this (USD 50 million) was already fully allocated in 2012 (ADB 2014).

### 3.2.4 Inter-American Development Bank

The Inter-American Development Bank's (IDB) climate change strategy identifies "sustainable urban transport" and "integrated urban development and climate-resilient cities" as two out of seven priority sectors (IDB 2013). The main financing instruments are sovereign guaranteed loans.

However, non-sovereign guaranteed loans, which are primarily for the private sector, can also be accessed by sub-national institutional investors.

The **Emerging and Sustainable Cities Initiative** offers technical assistance for emerging cities in Latin America and the Caribbean to develop and implement action plans for urban, fiscal and environmental sustainability, including climate change.

#### FOR DETAILS

##### IDB project cycle:

<http://www.iadb.org/en/projects/project-cycle,1243.html#>

##### Emerging and Sustainable Cities Initiative:

<http://www.iadb.org/en/topics/emerging-and-sustainable-cities/implementing-the-emerging-and-sustainable-cities-initiative-approach,7641.html>

### 3.3 International Philanthropic Sources

Private support can be an important complementary source to public financing. However, access to international private sources, such as international foundations, can be difficult for municipalities. Many programmes are planned by private investors (top-down) and the conditions for participation are unclear.

One of the biggest private players engaging in climate compatible development in cities is the **Rockefeller Foundation**. "Transform Cities" is among their core programmes. Interested entities can apply for grants online, but only very few projects are funded. As there is no possibility to include a proposal in the application and the funding focus lies on bigger organisations, the chances of direct access to funding by municipalities seems unlikely. In addition, the foundation follows an active search for candidates, which suggests a preference for top-down grant making. The foundation's **Asian Cities Climate Change Resilience Network** (ACCCRN) builds capacity in selected cities in Vietnam, India, Indonesia, Thailand, Bangladesh and the Philippines. It also provides a membership-based knowledge sharing platform open to all entities and players interested in urban climate change resilience. The **100 Resilient Cities Challenge** offers a grant for hiring a Chief Resilience Officer, technical support as well as access to knowledge sharing platforms and networks in order to develop a holistic urban resilience strategy. Cities can apply directly at the foundation and the deadline for the third and probably last round of the programme is the end of November 2015. However, similar programmes might follow.

Another example of an international foundation is the **Clinton Climate Initiative** by the Clinton Foundation, offering help for mitigation in large cities. However, direct access for cities is not possible.

Foundations like **Global Infrastructure Basel** (GIB) can help cities to improve their development projects and to find financiers. Projects can be uploaded onto the GIB project finder and will be graded for free based on sustainability criteria. Cities can also apply to present their project at the yearly GIB Sustainable Infrastructure Summit, where they can meet potential financial partners.

**FOR DETAILS****The Rockefeller Foundation application process:**

<http://www.insidephilanthropy.com/fundraising-for-climate-change/rockefeller-foundation-grants-for-climate-change.html>

**ACCCRN:**

[http://accrn.net/100 Resilient Cities:](http://accrn.net/100-Resilient-Cities) [http://www.100resilientcities.org/pages/100-resilient-cities-challenge#/-/\\_/](http://www.100resilientcities.org/pages/100-resilient-cities-challenge#/-/_/)

**GIB:**

<http://www.gib-foundation.org/>

**GIB Sustainable Infrastructure Summit:**

<http://www.gib-foundation.org/call-infrastructure-projects/>

### 3.4 Other International Support

Direct access for cities with the AFD

Besides climate funds, MDBs and private sources, there is other international support worth mentioning: The United Nations Human Settlements Programme (**UN-Habitat**) is working with cities in developing countries on mitigation and adaptation strategies, especially supporting local authorities in anchoring climate proofing and adaptation in planning processes. UN-Habitat has also been accredited by the Adaptation Fund since 2015, and tries to access funds from the GCF as well (UN-Habitat 2015). Its **Cities and Climate Change Initiative** offers help to create pro-poor and innovative climate change policies and strategies and develops tools to support city leaders and practitioners in adaptation and mitigation efforts. Its **City Resilience Profiling Programme** works on tools for measuring and increasing resilience to multi-urban impacts, testing those in a few selected cities.

Many donor countries also offer bilateral support around the issue of climate compatible development in cities. As the boundaries between the development assistance and climate financing are constantly shifting it is advisable for cities to stay updated on bilateral development programmes. Governmental development agencies (AFD, BMZ/GIZ, JICA, DFID, USAID, AusAID, etc.) often also conduct climate-related programmes and projects. For many projects cities funding access is limited as most of it goes either through national governments (e.g. German International Climate Initiative; Japan Fast Start Finance) or multilateral institutions (e.g. UK International Climate Fund). However, the **French Development Agency** (AFD), a public financial institution under the French Government, offers direct "sub-sovereign" loans to local governments (AFD 2015). These loans can be concessional as well as non-concessional (AFD 2013). Furthermore the AFD offers capacity building support for cities (AFD 2015). Besides development agencies, there are also national development banks (KfW, NADB, etc.), which offer bilateral development support. Access modalities are not very suitable for local governments but comparable to those of MDBs.

The **Urban Climate Change Resilience Trust Fund** by the Rockefeller Foundation, the United Kingdom Government's Department for International Development, the United States Agency for International Development and the ADB provides USD 150 million in supplement grants to medium-sized cities, aiming to leverage more than USD 1 billion investments for building climate resilience for the urban poor in 25 targeted cities in Bangladesh, India, Indonesia, Pakistan, the Philippines and Vietnam (USAID 2015).

The **Cities Climate Finance Leadership Alliance**, a broad cooperation of development and financing institutions as well as city networks, aims to help cities close their investment gap through advocacy and knowledge exchange. An internet-based knowledge-sharing platform for "city pro-



ject finance and technical assistance on low carbon, resilient infrastructure" that is currently being set up, can be helpful for municipalities (Climate Summit 2014).

The **Cities Development Initiative for Asia** (CDIA) supports medium-sized Asian cities with strategies and instruments for financing and implementing their development plans. On the one hand it helps identify financial sources for selected infrastructure investments from domestic and international finance markets and opportunities for public-private partnerships. On the other hand CDIA supports the strengthening of local institutional capacities by conducting training courses related to infrastructure investment planning, programming, and project development. Local governments can apply directly to the CDIA.

Also international NGOs and religious organisations can be a source of support worth keeping track of (Terpstra et al. 2013). However it might be more likely to gain support from organisations that are particularly working in the specific region of the municipality, rather than by simply applying to international ones which often operate their own projects. The **Global Fund for Cities Development** by the United Cities and Local Governments is an NGO helping local authorities to access finance for urban development projects. It offers technical assistance and financial engineering support for their members, for instance cities.

As networking is important for raising funds, associations like the Local Governments for Sustainability (ICLEI) can also be supportive, even if they do not directly offer funds. For example, local governments can apply for ICLEI's new Transformative Actions Programme (TAP). Each year up to 100 "ambitious, cross-cutting, multi-sectorial, inclusive and innovative mitigation and/or adaptation actions led by local and subnational governments" will be presented at the UNFCCC Conference of Parties (COP) to attract attention and potentially financiers (ICLEI 2015).

Besides Climate Funds, other international funds like the **Global Fund for Disaster Risk Reduction** should be considered by cities when seeking ways of financing adaptation and/or mitigation projects. Although its main purpose is to mainstream disaster risk reduction in national development strategies, it offers a Resilient Cities Programme jointly with the World Bank and engages with international partners to improve the support for cities.

The **Public-Private Infrastructure Advisory Faculty**, aiming to strengthen private sector involvement in emerging markets, helps building municipal capacity to enter public private partnerships. Its Sub-National Technical Assistance programme offers help in accessing private finance, focusing on debt financing for infrastructure. The implementation is being conducted by the World Bank. The local governments can apply for grants with an endorsement of the relevant senior official in the country.

#### FOR DETAILS

##### How to apply at the CDIA:

<http://cdia.asia/what-we-do/apply-for-support/>

##### List of Global Fund for Cities Development members:

[http://www.fmdv.net/uploads/media/PREMIERS\\_MEMBRES\\_FONDATEURS\\_02.pdf](http://www.fmdv.net/uploads/media/PREMIERS_MEMBRES_FONDATEURS_02.pdf)

##### The Global Fund for Cities Development offers plenty of leaflets about financial instruments for cities in different languages:

<http://www.fmdv.net/index.php?id=28&L=2>

##### How to apply for Public-Private Infrastructure Advisory Faculty funds:

<http://www.ppiaf.org/page/apply-funds>

##### A Handbook by the Public-Private Infrastructure Advisory Faculty, for municipalities about creditworthiness:

<http://www.ppiaf.org/sites/ppiaf.org/files/publication/Creditworthiness-Handbook-for-Municipalities.pdf>

### 3.5 Carbon Market Instruments

**Cap and trade schemes for cities**

In the past carbon finance has been an important source for financing climate change mitigation projects in developing countries (Paulais/Pigey 2009). Today however the situation has changed, also with consequences for cities: While on the one hand carbon prices have been falling significantly, recent reforms of the carbon market instruments have on the other hand opened up new access modalities for smaller projects on a city level (UNEP 2014, Simpson 2013). Generally, carbon finance is not well suited for initial finance as revenues only start flowing after the completion of projects, but it can be part of a convincing investment plan.

The **Clean Development Mechanism (CDM)** is the major global carbon finance mechanism allowing developing countries to create revenues from the sale of additional carbon reductions. While the current demand is low due to a diminutive carbon price, the trend may reverse at some point in the future and could then play a role in financing climate change adaptation and mitigation projects in cities (Simpson 2013). CDM projects have to go through the CDM project cycle, including the approval by the National Designated Authority and the CDM Executive Board. There are four different types of CDM projects (Table 3).

**Table 3: CDM mechanisms in the urban context (UNEP 2014)**

MECHANISM	KEY FEATURES	EXAMPLE
<b>CDM - large scale</b>	Offsetting mechanism which allows relatively large projects to generate carbon credits that can be traded in return for reducing GHG emissions compared to business as usual.	<ul style="list-style-type: none"> <li>• Bus rapid transit systems</li> <li>• Mass rapid transit projects</li> <li>• Landfill gas capture and power generation</li> </ul>
<b>CDM - small scale and bundling</b>	Enables smaller scale GHG mitigation activities to register for the CDM. Several identical projects operate under the same methodology, for the same period of time can be bundled under one registration.	<ul style="list-style-type: none"> <li>• Solar cooking stoves for households</li> <li>• Energy efficiency measures in households</li> <li>• Introduction of low-emission vehicles</li> </ul>
<b>CDM - Programme of Activities (PoA)</b>	A more flexible version of the CDM in which GHG mitigation activities across multiple sites are coordinated under one overarching programme, reducing transaction costs for individual projects.	<ul style="list-style-type: none"> <li>• Composting of municipal waste for multiple municipalities</li> <li>• Solar water heaters for houses in multiple locations</li> </ul>
<b>Citywide PoA</b>	Building on the concept of PoA by extending this to the city scale, incorporating multiple sectors and technologies.	<ul style="list-style-type: none"> <li>• Emission reduction across several sectors e.g. waste management, energy in buildings, urban transport</li> </ul>

The rather complicated process and the registration fees should be considered when deciding to launch a CDM programme. An alternative can also be the Voluntary Carbon Market (Binsted et al. 2013). For all types of carbon finance, the additionality of the measures has to be proven.

Furthermore, negotiators at the COP are discussing **new market-based mechanisms**. While those mechanisms are aimed at increasing the cost-effectiveness of mitigation actions, the outcome of those negotiations is still very open. **Local cap-and-trade systems** are often seen as such a new market-based mechanism. For this, a local government sets an upper limit for the GHG emissions from a specific sector or source, e.g. for buildings or industry. Under the cap, emissions can then be traded between different companies. Urban cap-and-trade mechanisms bear great potential for mitigating climate change. In Tokyo it reduced the emissions of large offices and factories by 22% in two years, far more than the actual cap (6-8%) (ICAP 2015). However, for the system to work successfully, the cap needs to be ambitious, controlled properly and be reduced continuously. The high expense for validation and verification of carbon credits could be a burden for smaller municipalities.

Although collaboration between citywide cap-and-trade systems has not been established so far, there are considerations about defining specific criteria for linking different cap-and-trade systems to further increase their effectiveness (DEHSt 2013). Prerequisites for successful **urban cap-and-trade partnerships** are stringent, reliable and comparable cap settings guided by long term policy objectives. In this context participating cities need to also agree on clear minimum criteria as well as potential extension and withdrawal conditions.

#### FOR DETAILS

**A detailed comparison of climate financing mechanisms for urban application can be found in the UNEP Publication "Climate Finance for Cities and Buildings - A Handbook for Local Governments":**

<http://climatefinanceoptions.org/cfo/node/3618>

**Further information on PoAs:**

<http://www.poapplatform.org/Resources/Operate-Manage-a-PoA>

**List of GEF Agencies:**

[https://www.thegef.org/gef/gef\\_agencies](https://www.thegef.org/gef/gef_agencies)

## 4 Conclusion

The publication has provided a sound overview of the existing instruments for how cities can access climate financing. Particularly the last chapter on international revenue sources has illustrated that in spite of the growing body of financial instruments the majority are not directly available to cities. Reasons for this are mainly that international funds and banks often require a strong record of fiduciary standards, social and environmental safeguards and creditworthiness. Although some initiatives and readiness support programmes have been set up to support cities in this regard, this has not yet borne fruits. Figure 4 illustrates that the majority of international financing sources for cities require strong cooperation with national level ministries in order to meet the requirements set by international funds or banks (large circle). The smaller circle illustrates the sources of funding that do not require national government support but can be accessed by cities directly. Particularly for second-tier cities that are not receiving much attention from capitals those sources can be very useful.

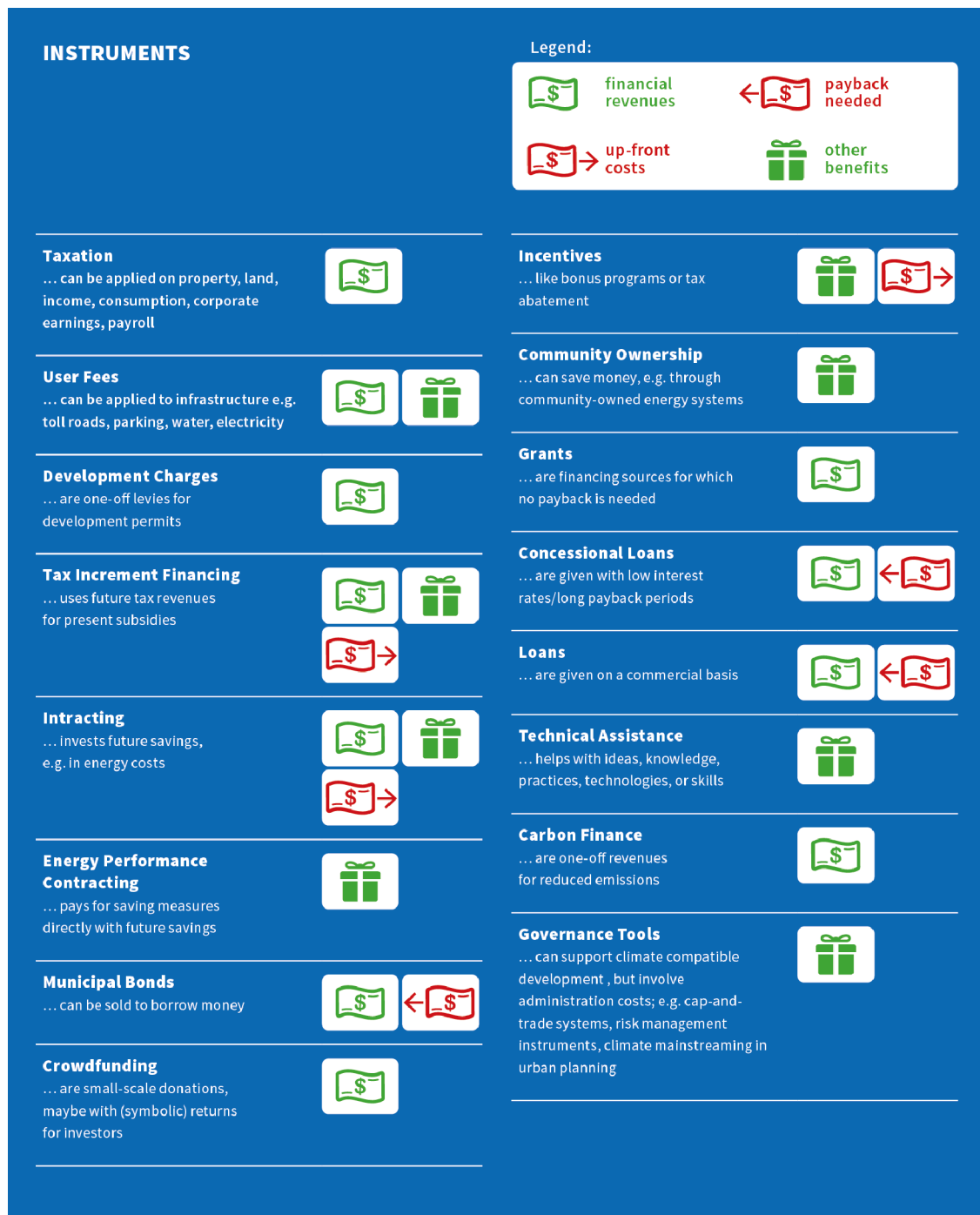
Figure 4: International sources



Source: Own illustration

At the same time the publication has illustrated that local governments should not direct all their attention to international financing options for translating their low carbon and climate resilient development plans into action. Particularly with regard to strengthening the ownership and sustainability of interventions as well as stability of revenue, funds that stem from the local level have multiple benefits compared to international financing sources. Given that some of them require up-front investments there is also the possibility of blending finances. For instance, the kick-off finance required for tax increment financing can be generated by issuing green bonds.

Figure 5: Climate financing instruments



Source: Own illustration

In addition to those instruments there is another option that does not directly contribute to raising revenues but can help cities and potential investors to enhance trust and thus facilitate investments: Risk management instruments. This can include guarantee schemes and insurance products and thus help to overcome the risk of default and lead to a revalued creditworthiness, in turn attracting investors to provide funding.

On the whole, as Figure 5 illustrates, the landscape of climate financing is very diverse and the instruments have very different conditions and benefits attached to them. There is not a one-size-fits-all financing solution that works in every city but the local context and conditions very much set the parameters for the instruments to be applied and enforced. Generally, most of those measures require effective administrative structures and a strong political backing to come into effect. At the same time a transformation towards a low carbon and climate resilient development demands for an inclusive pathway in which all urban residents, particularly the most vulnerable urban dwellers can take part, benefit from the intervention, and are not being resettled.

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# ANNEX: Idea Pool - Examples from Around the World

<p><b>LOS ANGELES, CALIFORNIA, USA</b></p>	<p><b>STORM WATER POLLUTION ABATEMENT CHARGE</b></p>	<p><b>CHARGE</b></p>
<p>The Stormwater Pollution Abatement Charge is levied on property owners each year. The charge is based on equivalent dwelling units and generates funds for receiving, transporting, pumping, constructing and maintaining storm drain facilities and for the treatment and/or disposal of storm drainage through the storm drain system.</p> <p><a href="http://www.lastormwater.org/about-us/funding/">http://www.lastormwater.org/about-us/funding/</a>  <a href="http://www.sandiego.gov/iba/pdf/09_13.pdf">http://www.sandiego.gov/iba/pdf/09_13.pdf</a></p>		
<p><b>CITIES IN BRITISH COLUMBIA, CANADA</b></p>	<p><b>CLIMATE ACTION REVENUE INCENTIVE PROGRAM</b></p>	<p><b>CARBON TAX</b></p>
<p>The Climate Action Revenue Incentive Program is a conditional grant program that provides funding to the ones that signed a Climate Action Charter and is financed of carbon taxes they pay. This funding supports local governments in their efforts to reduce GHG emissions and move forward towards achieving their Climate Action Charter goals. To be eligible for the conditional grant, local governments must sign up to the Climate Action Charter and by doing so commit to taking action and developing strategies to achieve climate action goals.</p> <p><a href="http://www.cscd.gov.bc.ca/lgd/greencommunities/carip.htm">http://www.cscd.gov.bc.ca/lgd/greencommunities/carip.htm</a>  <a href="http://www.cscd.gov.bc.ca/lgd/library/BC_CLIMATE_ACTION_CHARTER.pdf">http://www.cscd.gov.bc.ca/lgd/library/BC_CLIMATE_ACTION_CHARTER.pdf</a>  <a href="http://www.cscd.gov.bc.ca/lgd/library/CARIP_2013_Summary_Report.pdf">http://www.cscd.gov.bc.ca/lgd/library/CARIP_2013_Summary_Report.pdf</a>  <a href="http://www.cscd.gov.bc.ca/lgd/library/CARIP_Program_Guide_2014.pdf">http://www.cscd.gov.bc.ca/lgd/library/CARIP_Program_Guide_2014.pdf</a></p>		
<p><b>BERLIN, GERMANY</b></p>	<p><b>GROUNDWATER EXTRACTION FEE</b></p>	<p><b>FEE</b></p>
<p>The city of Berlin charges a fee for groundwater extraction amounting to 0.31€/m<sup>3</sup>, whereby 6000m<sup>3</sup> annually are free of charge (minor quantities). The groundwater extraction fee aims to establish an incentive to encourage water-saving behaviour (Schenker et al. 2014).</p>		
<p><b>WASHINGTON DC, USA</b></p>	<p><b>STORM WATER FEE</b></p>	<p><b>FEE</b></p>
<p>The Storm Water Fee covers the cost of managing pollution in storm water runoff and provides a source of funding to pay for these pollution control efforts. This fee helps to pay for activities that keep waterways clean (green roofs, rain gardens, tree planting, street sweeping). District residents, businesses, and property owners can earn a discount of up to 55% off the Storm Water Fee when they reduce storm water runoff by installing green infrastructure such as green roofs, bio-retention, permeable pavements, and rainwater harvesting systems.</p> <p><a href="http://green.dc.gov/service/changes-districts-stormwater-fee">http://green.dc.gov/service/changes-districts-stormwater-fee</a>  <a href="http://green.dc.gov/node/8747823">http://green.dc.gov/node/8747823</a> <a href="https://www.dwater.com/customer-care/iab.cfm">https://www.dwater.com/customer-care/iab.cfm</a></p>		

<p><b>BOSTON, MASSACHUSETTS, USA</b></p>	<p><b>DEVELOPMENT IMPACT PROJECT AGREEMENT</b></p>	<p><b>IMPACT FEE, DEVELOPMENT CHARGE</b></p>
<p>From 1987 to 2004 Boston collected up to USD 108 million from the so called linkage scheme. The linkage scheme essentially taps private capital to fund social projects. The rationale behind it is that there is a direct link between the construction of new commercial space and the increase in demand for affordable housing in the city, deriving from the influx of workers employed in the new commercial development. Developers of all new commercial, retail, hotel, or institutional structures (hospitals and universities), with a floor area over 100 000 square feet pay an exaction fee which subsidises the construction of affordable housing and job training, with a requirement that 20% of any payment to be reserved for use in the area surrounding the development.</p> <p><a href="http://unhabitat.org/?wpdmact=process&amp;did=NzMyLmhvdGxpbnms">http://unhabitat.org/?wpdmact=process&amp;did=NzMyLmhvdGxpbnms</a> (Chapter 4)</p>		
<p><b>NEW YORK, USA</b></p>	<p><b>CATASTROPHE BOND</b></p>	<p><b>CATASTROPHE BOND</b></p>
<p>Catastrophe Bonds are a way for cities exposed to huge risks to raise capital. The investor (hedge funds, sovereign wealth funds, pension funds, endowments, individual wealthy investors) buys the bond. Thereby, the investor lends money to the issuer, which is reinvested in low-risk securities. In return, the issuer of the bond pays an interest premium and has to bear a high rate of interest.</p> <p><a href="http://roadtoparis.info/2014/11/18/cat-bonds-cashing-catastrophe/">http://roadtoparis.info/2014/11/18/cat-bonds-cashing-catastrophe/</a></p>		
<p><b>CITY OF BERKELEY, CALIFORNIA, USA</b></p>	<p><b>FINANCING INITIATIVE FOR RENEWABLE AND SOLAR TECHNOLOGY</b></p>	<p><b>BOND</b></p>
<p>The solar financing program is an example of a Property Assessed Clean Energy bond. The bond proceeds are lent to commercial and residential property owners to finance energy retrofits (efficiency measures and small renewable energy systems like solar photovoltaic electric systems). Property owners then repay their loans over 20 years via an annual assessment on their property tax bill (Stoner 2010).</p>		
<p><b>OESTRICH-WINKEL, GERMANY</b></p>	<p><b>LEND YOURCITYMONEY ("LEIHDEINERSTADTGELD")</b></p>	<p><b>CROWDLENDING</b></p>
<p>The guiding principle is the distribution of financial assets of a project among many investors (crowdfunding). Hence, every investor provides a financial sum which is small compared to the overall financial assets that are needed. In return, the investor gets the money they lent back with a low rate of interest (which makes it attractive for the city to borrow money from its citizens rather than from banks). In addition, the citizens may also benefit from the implemented projects (transparency). Citizens can participate by lending as little as 100€. In this case, the money was spent on investments in the municipal fire department. (Brill 2015)</p>		
<p><b>DÜSSELDORF, GERMANY</b></p>	<p><b>TAX RELIEF: REDUCTION OF RAINWATER FEE FOR GREEN ROOFS</b></p>	<p><b>TAX RELIEF</b></p>
<p>Like in many other municipalities in Germany property owners can reduce their rainwater fee up to 50% by greening their rooftops. This incentive encourages the construction of green roofs and the drainage system is burdened less by heavy rainfall. The CO<sub>2</sub> emission reduction occurs due to the green roof's cooling abilities in the summer and improved thermal insulation in the winter - these effects reduce the usage of air conditioning and heating. Tax relief results in reduced gross income for the local government but will ultimately lead to cost reduction in rainwater discharge management in the long-term. Therefore, this measure should lead to positive fiscal effects (Schenker et al. 2014).</p>		

<p><b>GWANGJU, SOUTH KOREA</b></p>	<p><b>CARBON BANKING SYSTEM</b></p>	<p><b>VOLUNTARY CARBON BANKING SYSTEM</b></p>
<p>The Carbon Banking System is a voluntary carbon finance scheme which grants ‘carbon points’ with a cash value to households for reducing their consumption of electricity, gas and drinking water. The points can be used for green goods and discounts. Reductions of at least five percent over a household’s previous two-year average must be realised to earn “carbon points.” Points are also accumulated by purchasing certain environmentally friendly products and using public transport. It is a collaborative effort between the city government, utility companies, banks and households. The scheme uses the ‘Green Card’ - a credit card like system for household carbon ‘bank accounts’. By 2012, over half of all households in the city were taking part, generating US\$ 250 000 in carbon points and 84 000t CO<sub>2</sub> emission savings. By 2020 the aim is for 100% participation and almost 100,000t CO<sub>2</sub> in emission reductions. (UNEP 2014)</p> <p><a href="http://www.guangzhouaward.org/650/content_803.html">http://www.guangzhouaward.org/650/content_803.html</a></p>		
<p><b>TOKYO, JAPAN</b></p>	<p><b>MANDATORY CAP-AND-TRADE PROGRAM</b></p>	<p><b>URBAN CAP-AND-TRADE</b></p>
<p>The Cap and Trade Programme sets GHG emission limits for existing commercial buildings. Any facility that consumes 1500 kilolitres of fuel per year (oil equivalent) is covered, which encompasses around 1340 facilities in the metropolitan area. Facilities must reduce their emissions according to a target set for each compliance period; for 2010-2014 this is a 6% to 8% reduction. For 2015-2019 this target is intended to rise to a 17% reduction. As with other cap-and-trade system, facilities that achieve a reduction beyond the required volume can sell their additional reductions as carbon credits. The system reduced the emissions of large offices and factories by 22% over a two year period, far further than required by the actual cap (ICAP 2015).</p> <p><a href="http://www.kankyo.metro.tokyo.jp/en/climate/cap_and_trade.html">http://www.kankyo.metro.tokyo.jp/en/climate/cap_and_trade.html</a>  <a href="http://www.iclei.org/fileadmin/PUBLICATIONS/Case_Studies/ICLEI_cs_144_Tokyo.pdf">http://www.iclei.org/fileadmin/PUBLICATIONS/Case_Studies/ICLEI_cs_144_Tokyo.pdf</a></p>		
<p><b>AUSTRALIA</b></p>	<p><b>AUSTRALIAN NATIONAL WATER MARKET</b></p>	<p><b>TRADABLE ENVIRONMENTAL LICENCES</b></p>
<p>Water licenses ensure that only the amount of water that the environment can cope with is traded. Players with high water consumption (e.g. agriculture, industry) are assigned a certain volume of consumption from the state. The allocated quantities can be traded between the players like GHG emission certificates. Thus, there is an incentive to save water. The number of tradable certificates is based on an annual consideration and is calculated based on the required amount of water, necessary to preserve the ecosystem. The difference between the overall available water and the calculated required water quantity is available for trading. The price for certificates will probably fluctuate due to times with and without natural water shortages. Hence, an aspect of dynamic efficiency is lost. (Schenker et al. 2014)</p> <p><a href="http://www.nationalwatermarket.gov.au/">http://www.nationalwatermarket.gov.au/</a></p>		

<p><b>WASHINGTON DC, USA</b></p>	<p><b>STORM WATER RETENTION CREDIT TRADING PROGRAM</b></p>	<p><b>CREDIT TRADING</b></p>
<p>The District Department of the Environment created the Storm Water Retention Credit trading program (SRC) to lower compliance costs of regulated sites while maximising benefits for district water bodies by establishing a market for voluntary storm water retrofits. District properties generate SRCs by exceeding their own regulatory requirements or voluntarily installing retention infrastructure such as green roofs and rain gardens. The credits are traded on an open market to others who use them to meet regulatory requirements for retaining storm water. The revenue creates incentives to install green infrastructure that protects rivers and provides other benefits.</p> <p><a href="http://green.dc.gov/src">http://green.dc.gov/src</a></p>		
<p><b>KUYASA, CAPE TOWN, SOUTH AFRICA</b></p>	<p><b>KUYASA LOW-COST URBAN HOUSING ENERGY UPGRADE PROJECT</b></p>	<p><b>CLEAN DEVELOPMENT MECHANISM (CDM)</b></p>
<p>The Kuyasa project focuses on energy efficient building retrofits. It seizes the opportunity for efficiency gains presented by the low thermal performance of low-income housing, as well as the potential for replication given by the very regular design of such buildings. A total of 2309 low-income houses on the outskirts of Cape Town were equipped with several energy efficiency interventions. Following an initial pilot phase in ten houses, the project was registered under the CDM in 2005, the first in South Africa. The project is a collaboration between the local government of Cape Town, the Dutch NGO SouthSouthNorth and the local community. The goals are to improve the living conditions of the low-income inhabitants while reducing fossil fuel-based energy consumption, energy costs and GHG emissions. Beyond the main government funding for implementing the project, the main ongoing source of revenue is from the sale of Certified Emissions Reduction (CER) credits through the CDM (\$3,08MM). The project has been able to save 7.40 million kWh (34%) and 6,437 tons of CO<sub>2</sub> emissions (33%) on an annual basis, representing aggregated savings of 155 million kWh and 135,187 tons of CO<sub>2</sub> emissions. Furthermore, the insulated ceilings resulted in improved thermal comfort and improved indoor quality in the houses (UNEP 2014).</p> <p><a href="http://www.esmap.org/sites/esmap.org/files/Kuyasa_EECI_Housing_FinalCaseStudy_Africa.pdf">http://www.esmap.org/sites/esmap.org/files/Kuyasa_EECI_Housing_FinalCaseStudy_Africa.pdf</a></p>		
<p><b>PANAMA CITY, PANAMA</b></p>	<p><b>RAIL INFRASTRUCTURE PROJECT</b></p>	<p><b>CREDIT GUARANTEE</b></p>
<p>The Multilateral Investment Guarantee Agency (MIGA) - the political risk insurance arm of the World Bank Group - announced it is supporting the Panama government's efforts to construct a mass-transit system as a solution to Panama City's urban transportation issues. In connection with the financing plan for this infrastructure investment, MIGA has issued a guarantee of USD 320 million to cover a USD 250 million loan arranged by Citi Transaction Services and Citigroup Global Markets Inc. including interest and other financing costs associated with the construction of Line 1 of the metro system. The project ran from 2011 to 2014 and the total financial investment costs were about USD 1.9 billion.</p> <p><a href="http://www.citi.com/transactionservices/home/about_us/press_room/2012/2012_0719.jsp">http://www.citi.com/transactionservices/home/about_us/press_room/2012/2012_0719.jsp</a>  <a href="http://www.citigroup.com/citi/citiforcities/roads_transit/n_08282012.htm">http://www.citigroup.com/citi/citiforcities/roads_transit/n_08282012.htm</a></p>		

<p><b>ETHIOPIA, MALAWI, SENEGAL, ZAMBIA</b></p>	<p><b>R4 RURAL RESILIENCE INITIATIVE</b></p>	<p><b>INSURANCE</b></p>
<p>The comprehensive risk management approach aims to help vulnerable rural communities to be more resilient to climate variability and shocks by increasing their food and income security. The risk management strategies are improved resource management through asset creation (risk reduction), insurance (risk transfer), livelihoods diversification and microcredit (prudent risk taking) as well as savings (risk reserves). Farmers can pay for crop insurance with their own labour on local projects such as building stone walls in fields to reduce water run-off and erosion.</p> <p><a href="http://www.wfp.org/climate-change/r4-rural-resilience-initiative">http://www.wfp.org/climate-change/r4-rural-resilience-initiative</a>  <a href="http://www.trust.org/item/20150619130809-7m5so">http://www.trust.org/item/20150619130809-7m5so</a></p>		

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# Germanwatch

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For further information, please contact one of our offices

## **Germanwatch – Bonn Office**

Kaiserstr. 201  
D-53113 Bonn, Germany  
Phone: +49 (0)228 / 60492-0  
Fax: +49 (0)228 / 60492-19

## **Germanwatch – Berlin Office**

Stresemannstr. 72  
D-10963 Berlin, Germany  
Phone: +49 (0)30 / 2888 356-0  
Fax: +49 (0)30 / 2888 356 -1

E-mail: [info@germanwatch.org](mailto:info@germanwatch.org)

or visit our website:

**[www.germanwatch.org](http://www.germanwatch.org)**



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