

# Climate Finance in the Urban Context

November 2010

## ISSUES BRIEF #4

Cities and the people who live in them account for more than 80 percent of the world's total greenhouse gas emissions. In addition, more than 80 percent of the overall annual global costs of adaptation to climate change are estimated to be borne by urban areas. This *Issues Brief* looks at potential financing opportunities and costs of mitigation and adaptation in the urban context. Wide-ranging potential sources for finance for climate action are described, and suggestions are made for more-effective responses to climate investment challenges in cities.



THE WORLD BANK

## COSTS OF ADAPTATION AND MITIGATION IN CITIES

A good deal of climate-resilient development in the urban context simply means good, robust development. Potential climatic changes pose additional challenges in building infrastructure that can withstand extreme variations in weather conditions, such as flooding, wind storms, heat waves, and heavy snowfall. Increasingly the work toward the Millennium Development Goals and related urban infrastructure should be screened for the potential impacts and increased costs associated with a changing climate.

There is an **incremental cost to climate-resilient development** for which cities are seeking additional financing. Cities are also the largest emitters of greenhouse gases (GHGs) and are experiencing increased costs as they move toward **low-carbon development paths**—that is, mitigating GHG emissions.

When addressing adaptation and mitigation costs, the broad range of **financing needs** includes:

- Upstream planning for the provision of urban services
- Prefeasibility and feasibility analysis of investments
- Support for climate change adaptation and disaster risk management at the city level

- Support for low-carbon solutions in the energy sector
- The design and construction of investments
- Maintenance and repair
- Monitoring, evaluation, and reporting.

## ADAPTATION

Key adaptation considerations for urban areas emerging from the Economics of Adaptation to Climate Change study and the complementary study on coastal cities (both completed by the World Bank in 2010) include:

- Urban flooding is a significant risk, particularly in low-lying coastal cities.
- Urban infrastructure (drainage and buildings) account for over half of the costs of infrastructure.
- Municipal and industrial water supply is also likely to be concentrated in urban areas.
- Coastal protection measures focus on people and economic activity and are concentrated in urban areas.
- Adaptation costs account for only a fraction of overall baseline costs associated with normal development. For instance, much of the flooding in large cities is caused by land use changes, poorly maintained drainage infrastructure, and weak management rather than by climate change.

With expected increases in urbanization and higher income levels, most urban infrastructure that will exist in 40–50 years has not yet been built, nor have all the locations been determined. This provides a unique

opportunity for rapidly growing cities: they can be built better and avoid locking in costly, high-emitting and non-climate-resilient infrastructure.

**Effective public policy can encourage future populations to move away from areas of high natural risk. This requires forthright sharing of information and avoiding perverse incentives to remain in high-risk areas as well as positive incentives to promote settlement and urban growth in lower-risk areas.**

No common method has been developed to quantify climate risk at the urban level. Inability to estimate the cost of local adaptation hampers the efforts of cities to identify concessional resources to meet the adaptation challenge. Good practical examples of prioritization and costs of the impact of climate change and consequent risk need to be developed and piloted in cities to provide common benchmarks and guidelines. One such effort is the Urban Risk Assessment being developed by the World Bank in partnership with the United Nations Environment Programme, UN-HABITAT, and the Cities Alliance.

## MITIGATION

Urban residents on average use two to three times more resources than people in rural areas of the same country. Their resource-intensive lifestyles account for more than 80 percent of the world's total GHG emissions. Yet cities, especially the denser city cores, are more efficient in providing basic services than suburban or rural areas. Cities

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### BOX 1 COASTAL CITIES AT RISK

The recent *Climate Risks and Adaptation in Asian Coastal Megacities: A Synthesis Report*—a two-year collaborative study by the Asian Development Bank, the Japan International Cooperation Agency, and the World Bank—studied the vulnerability of four Asian coastal cities to the impacts of climate change. If current climate change trends continue, flooding in Bangkok, Ho Chi Minh City, and Manila is likely to occur more frequently by 2050, submerging large parts of each city for longer periods of time. Costs from major flooding events are estimated to run into billions of dollars, depending on the city and climate change scenario considered, with urban poor populations likely to be especially hard hit. The additional damage cost from climate change is estimated to be in the range of 2–6 percent of regional gross domestic product (GDP).

In Manila, a 1-in-30-year flood can lead to damages ranging from \$900 million, given current flood control infrastructure and climate conditions, to \$1.5 billion with similar infrastructure but with a high-emissions climate scenario. The report goes on to say that in Metro Manila, if flood control infrastructure improvements were halted now, under a high-climate-change scenario a 100-year return period flood could cause aggregate damages of up to 24 percent of regional GDP.

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in the developing world, where more than four-fifths of future population growth will take place, can have a significant positive impact on GHG emissions by investing in low-carbon technologies, building to an optimum urban form, and enacting energy efficiency measures. Since many of the technologically superior options are considerably more expensive than conventional technologies, cities often find it difficult to justify selecting them. Mitigation efforts in the urban context may include:

- Programs to reduce the cost and extend the availability of energy-efficient lighting and appliances
- Renewable energy facilities
- Use of waste/landfills for energy through biomass and methane recovery
- Geothermal energy
- Improved mobility through affordable mass transit

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## BOX 2 SHIFTS IN ENERGY SOURCES FOR COOKING IN TANZANIA

In Tanzania, 33 percent of the population was urban in 2007 (up from 21 percent in 2001). With a growth rate of 4.3 percent per year, Dar es Salaam is one of the fastest-growing cities in Sub-Saharan Africa. From 2001 to 2007, the proportion of households using charcoal as their primary energy source increased from 47 to 71 percent. Use of liquefied petroleum gas declined from 43 to 12 percent. In other urban areas, the share of households using charcoal for cooking remained at 53 percent while the share of fuelwood use increased from 33 to 38 percent. The use of electricity for cooking is below 1 percent.

- Replacement of inefficient cook stoves that use wood or GHG-emitting fuels with new technologies.

Many of these mitigation opportunities may have a higher initial cost than providing the same services through conventional solutions. These incremental costs need to be met through additional sources of funds.

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## BOX 3 SUPPORTING MEXICO'S URBAN LOW-CARBON TRANSFORMATION

The objective of the Mexico Urban Transport Transformation Program is to change urban transport in Mexican cities to a lower-carbon growth path by improving its quality and sustainability and by upgrading related elements of the urban transport system. The project is ambitious in its design and scope and, if successful, will have a transformative impact on the urban transport sector in Mexico. It builds on a World Bank loan of \$200 million and an additional Clean Technology Fund concessional loan of \$200 million. These resources will be channeled through the Banco Nacional de Obras, which will then provide the participating municipalities with this loan funding. Combined with funding from the National Trust for Infrastructure, this will make up to \$900 million available. The private sector and the municipalities themselves are expected to make contributions of up to \$300 million and \$150 million, respectively. An estimate of the potential for carbon revenue payments could run to approximately \$50 million additional funds. Urban areas that complete and propose Integral Transport Plans will be eligible for funds.



## CURRENT SOURCES OF CLIMATE FINANCE

Adaptation and mitigation programs require financing from a wide variety of local, national, and international sources, public and private, with various levels of grants and concessional lending. **A large share of climate investments are funded from general sources not directly attributable to climate finance.**

Available climate funds remain at a relatively modest scale compared with the needs of developing countries. Progress to date demonstrates the potential **catalytic role of public finance**—its ability to leverage both climate and development finance through piloting innovative approaches that combine resources to maximize synergies, explore new opportunities to expand the scope for market mechanisms, and strengthen the capacity for effective use of resources. Examples at national and subnational levels can be found in the document *Making the Most of Public Finance for Climate Action: The World Bank Group at Work*, published in the Development, Climate & Finance Issues Briefs series in May 2010.

The Annex provides a matrix summarizing various potential sources of financing climate action and their relevance in the urban context. More detailed information on most of the sources can be obtained from the joint United Nations Development Programme/World Bank Climate Finance Knowledge Platform, at [www.climatefinanceoptions.org](http://www.climatefinanceoptions.org). Most of the funds described in the Annex are programmed by national authorities and entities, and cities need to find entry points in order to benefit from them. Their relevance to urban mitigation and adaptation action is highlighted in the following section. Some potential innovative sources are described in more detail.

### NATIONAL CLIMATE FINANCE SOURCES

**Taxes** are a potentially powerful tool, especially property tax. It has a direct relationship with land use and the built environment, which is responsible for a large part of cities' GHG emissions. **Fees and charges** could be effective instruments in a variety of areas to signal the higher cost of internalizing environmental externalities, including the transport, land development, waste, and water sectors. Fees and charges are ideal for funding local services where

specific beneficiaries can be identified and nonpayers can be excluded. Fees are particularly effective when they recover full costs and when paid according to individual or household use, as these give residents incentives for more efficient use of resources.

Governments at all levels are usually reluctant to raise taxes. Local governments often receive much of their overall funding from national or state/provincial transfers. As countries continue to decentralize, greater taxing authority should be given to local governments, particularly as it relates to new costs associated with climate change. National governments may also wish to apportion international concessional funds directly to local (urban) governments.

### INTERNATIONAL SOURCES OF FINANCE

- **Global Environment Facility (GEF)** — New for GEF 5 (2011–14) is a focus on reducing the GHG intensity of urban systems.
- **Adaptation Fund (AF)** — A number of applications for initiatives in the urban context have already been received for consideration by the AF Board.
- **Global Fund for Disaster Risk Reduction** — There is an increased role in risk screening and building preparedness and resilience in low-income countries.
- **Climate Investment Funds (CIF):**
  - ◊ **Pilot Program for Climate Resilience (PPCR)** — Due to the vulnerability of urban areas to climate change, the PPCR provides a wide range of opportunities to address strategic subnational planning and concrete adaptation investments through active participation in national processes.
  - ◊ **Clean Technology fund (CTF)** — All approved country investment plans include components for the transport and energy sectors in cities combining CTF funds with loans from other sources and expected revenue streams from the carbon market.
  - ◊ **Scaling Up Renewable Energy Program In Low Income Countries (SREP)** — Initiatives from urban communities in countries eligible for concessional multilateral development bank (MDB) financing and engaged in an active MDB program can be integrated into the SREP programming process.
- **Reducing Emissions through Deforestation and Forest Degradation (REDD+)** — An approach that

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## BOX 4 BANGKOK'S GHG EMISSIONS AND THE CLEAN TECHNOLOGY FUND

The Clean Technology Fund Investment Plan for Thailand was approved in December 2009 and includes a significant component for “urban transformation” in Bangkok due to the city’s unique position in the country. Thailand’s energy consumption is concentrated in the Bangkok Metropolitan Region and directly contributes to the city’s GHG emissions.

On average, Bangkok is less dense than other East Asian cities, and its urban form is currently locked in by its transportation system. Based on analysis undertaken as part of World Bank work on the international standard for city GHG emissions, it was found that at 10.6 tons of carbon dioxide equivalent, Bangkok’s residents generate more GHG emissions per capita than the global average for city dwellers. Prior to the CTF Investment Plan, the Bangkok Metropolitan Administration (BMA) had already launched its Action Plan on Global Warming Mitigation, with a target to reduce the city’s emissions by 15 percent. With the CTF, Bangkok was thus able to enhance its GHG mitigation program based on a credible and verifiable emissions baseline. The CTF is providing \$70 million for urban transformation in Bangkok, to cofinance the development of a bus rapid transit system for the city. CTF support is also cofinancing investments in energy efficiency for BMA facilities and public spaces, focusing on electrical appliances and air conditioning.

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includes reducing emissions from cook stoves in urban areas.

- **International Development Association (IDA).**
- Other **MDBs** and **bilateral development agencies.**

The International Bank for Reconstruction and Development of the World Bank Group as well as other MDBs and bilateral development banks provide loans particularly to middle-income countries in support of mitigation and adaptation action. This is usually in combination with grant or concessional funds from other sources. These funds have been a significant source for financing infrastructure investments in middle-income countries, including for cities.

An increasingly common instrument for budget support is Development Policy Loans (DPL), which national governments can negotiate with a financial institution to cover a sector or a subnational entity. Climate change DPLs under implementation or identification that have large-



scale climate change policy aspects include those for Mexico (with transportation policy actions in Mexico City), Indonesia (a series of climate change DPLs expected), and Brazil (with climate change policy aspects in Rio de Janeiro and São Paulo).

## RISK MANAGEMENT INSTRUMENTS

### *Insurance schemes*

Natural catastrophes have increased in frequency and cost due to growing urban density and climate change. With this in mind, and in response to demand from its member countries, the World Bank has developed a catastrophe bond issuance platform—the **MultiCat Program**—that allows governments to use a standard framework to buy

parametric insurance on affordable terms. Parametric insurance pays shortly after a natural disaster event, based on its measured severity. This program:

- Facilitates access to international capital markets for insurance against the risk of natural disasters
- Ensures access to immediate liquidity to finance emergency relief/reconstruction post-disaster
- Supports a wide variety of structures, including the pooling of multiple risks (earthquakes, floods, hurricanes, and other wind storms) in different regions.

The World Bank's **Global MultiCat** is a bond that pools a large number of exposed areas/cities and perils, considerably reducing insurance costs through diversification. Instead of working with insured governments, the World Bank could select a pool of cities/regions and risks, with identified donors and cities paying the insurance premiums.

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### BOX 5 MULTICAT MEXICO 2009

**Background:** The Mexican government in 2006 insured its catastrophe reserve fund, the Fondo de Desastres Naturales (FONDEN), against natural disasters with a mix of reinsurance and a catastrophe bond. The resulting contract is linked to a parametric trigger in terms of magnitude and depth of seismicity for the three-year period 2007–09. In 2008, the Mexican government spent \$1.2 billion from the reserve fund to cover rescue and rebuilding operations after Hurricanes Stan and Wilma. The government then decided to work with the World Bank on a new catastrophe bond that would renew the Cat Mex and open the way for other governments to buy disaster insurance in the form of a parametric catastrophe bond. As a result, Mexico successfully established the MultiCat Mexico 2009, with the World Bank acting as arranger.

**Limitations:** The coverage from FONDEN is the fraction of the coverage that is taken care of by the federal government. Mexican states are also supposed to support a fraction of the post-disaster expenses; the instrument does not give these Mexican states access to reinsurance markets. In addition, the preparation of the MultiCat Mexico was possible thanks to the technical expertise existing in the Mexican Ministry of Finance. Such technical expertise would need to be developed by any government willing to use the MultiCat platform either before or during the preparation of a MultiCat issue.

**Organizations involved:** World Bank, Inter-American Development Bank.

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Capital markets investors buying the Global MultiCat would be paid an insurance premium for providing coverage to the entire pool. The unique risk return profile associated with the pool would attract interest from a wide variety of investors. Estimates show that a three-year \$250-million Global MultiCat placed in capital markets could provide \$50 million insurance coverage against earthquakes, hurricanes, or floods to each member of a group of some 40 cities.

### *Guarantee instruments*

The city government often plays a major role in urban infrastructure investment by providing significant financial support for these services. MDBs can support the financing by offering credit enhancements to facilitate access to broader credit for such governments. These instruments are partial credit guarantees (PCG)—the guarantor shares the risk of debt service default with the lenders on some predetermined basis. The PCG programs funded by the GEF for energy efficiency investments typically provide for a 30–50 percent guarantee on loans made by participating financial institutions, chiefly on a pro-rata basis.

Guarantees can also be used to improve certainty to investors. A partial risk guarantee (PRG) could be used in this instance. A PRG could guarantee private lenders or investors/project companies (through shareholder loans) against the risk of a government (or government-owned entity)

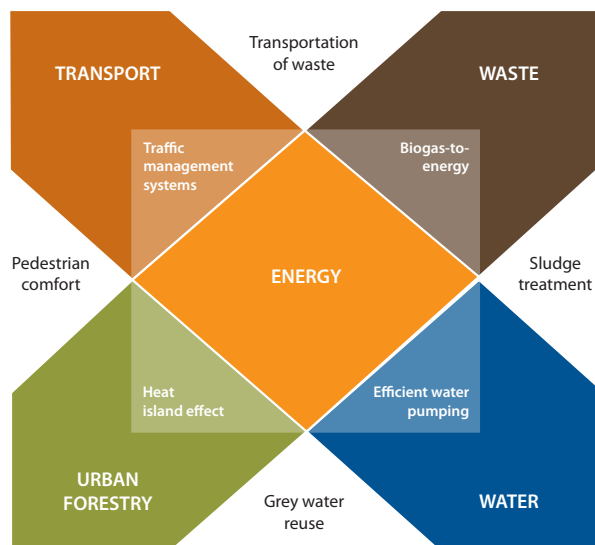
failing to perform its contractual obligations with respect to the private project.

The World Bank offers partial credit and partial risk guarantee products. Each can be structured to meet the specific needs of the project investors and government and can require a counter-guarantee from the sovereign government. Other MDBs may not require sovereign counter-guarantees. The Multilateral Investment Guarantee Agency of the World Bank Group, for instance, offers standard cross-border risk insurance without an explicit counter-guarantee from the government.

## MARKET INSTRUMENTS

### Carbon finance

Carbon finance refers to the use of the flexible mechanisms of the Kyoto Protocol, including the Clean Development Mechanism (CDM) and Joint Implementation, as well as voluntary programs such as Tokyo's local emissions trading system. Registered projects resulting in GHG emission reductions located in developing countries or economies in transition obtain certified emission reductions (CERs) that can be traded in the market, thereby providing a performance-based revenue stream to the project. In 1999, the World Bank created the first carbon fund in the world, the Prototype Carbon Fund. The Bank's newest carbon finance initiative is the Carbon Partnership Facility (CPF). The CPF can support cities in improving their overall market readiness, in developing emissions reductions projects, and in acquiring CERs for the market.



CDM methodologies cover 15 sectors, including waste, energy, and transport, which cover many typical projects in cities.

Municipal authorities are responsible for urban services like transport, waste, public buildings, water services, and urban forestry. A city may directly manage specific services, such as water supply, and subcontract others, such as operation of city buses and landfills. The city authority also influences the behavior of city residents and visitors by enforcing regulations such as building codes and vehicular emission limits. All these areas could be candidates for carbon finance.

The city-wide approach to carbon finance is designed to help cities incorporate GHG mitigation concerns into their urban planning processes. For cities with limited budgets, carbon finance can help justify the effort of coordinating with various stakeholders (including their own departments) and help deal with the higher cost involved in choosing a lower-emission technology. The city-wide approach is also designed to help establish voluntary GHG mitigation programs involving multiple cities. Clear and standardized GHG emissions baselines are a prerequisite.

### Climate bonds

The World Bank has raised funds through green bonds, where the proceeds are dedicated to a specific purpose, and Carbon Emission-Linked Notes. These types of issuance opportunities can also be explored by other bond issuers with financing needs for climate activities, including governments or cities.

The first World Bank **Green Bonds** were issued in 2008 to respond to a group of investors interested in doing something about the climate challenge but who were looking for assets that offer an appropriate risk-adjusted return that fit their asset management strategies. This product benefits from the credit strength of the World Bank but still supports mitigation and adaptation projects around the world. So far, the World Bank has issued 25 bonds in 16 currencies and raised \$1.6 billion in green bonds placed with investors in the United States, Europe, and Japan. These bonds are part of the overall World Bank funding program that raises approximately \$30 billion annually from the capital markets. The proceeds of Green Bonds are allocated to projects addressing climate change in client countries.

The World Bank is using its experience with green bonds to advise other issuers in designing similar products and could, for example, **work with city governments as issuers to structure and arrange transactions that may be of interest to investors interested in green investments within their respective cities.**

The World Bank is currently also working in two middle-income countries on **new carbon-linked bonds** that would contribute to the financing of a program of emission reduction projects. Such bonds could be issued through different structures in which the World Bank brings its

convening power to select the best financial firms as partners and to reach out to investors interested in emission reduction projects. City governments with energy efficiency projects that could generate flows of measurable GHG abatement over time, potentially eligible for the CDM or for future cap-and-trade schemes, could obtain funding on very attractive terms through such structures.

## PUBLIC AND PRIVATE

Private companies—from small businesses selling water through kiosks or providing road maintenance to local and international operators with solid expertise and financial resources—can play a key role in providing more and improved services in urban areas. Developing efficient public-private partnerships that recognize the strengths of both the private and public sectors is an important part of the solution.

Public money can be used to make strategic investments in order to attract private funds to a certain area. By doing this, the use of public money is more efficient and greater leverage ratios are achieved.

There are two main ways of doing this:

- Direct equity investments in companies such as clean technology or in manufacturing companies or projects such as in the area of infrastructure
- Indirect investments, through financial institutions, in programs that foster lending for clean technology, energy efficiency, renewable energy for cities, and so on; this could be done, for example, through the use of guarantees, structured finance products where an MDB buys the mezzanine piece, first lost piece, and so on or through the purchase of green bonds issued by an MDB or other entity.

## WAY FORWARD

Finance tends to move toward cities that are better managed and that provide more comprehensive and consistent information to the public. Recognizing the need for clear metrics and the ability of cities to learn from each other, new climate finance should be viewed holistically within a city's overall management capacity. Important tools, such as standard urban risk assessments, standard





GHG emissions baselines, and city metrics (the Global City Indicator Facility, for example), are under development in order to facilitate additional climate finance for cities.

**Urban planning** is a critical tool to reduce vulnerabilities in cities. These vulnerabilities are certainly enhanced by climate change but are mainly brought about through projected urban sprawl, population increase, and poor municipal management. The ancillary benefits of appropriate planning for both mitigation and adaptation include traveling shorter distances, more viable public transport, and potentially avoided costs of disaster response. Water supply—which may be in or outside the city boundaries—is an element potentially at risk from various effects of climate change, including extreme events, groundwater depletion, seawater intrusion into groundwater, and rainfall variability, and would benefit greatly from good urban planning.

Small sums of money allocated across a large number of projects may have limited impact and are often inefficient. However, the **efficient combination of resources** from the instruments just described can maximize and leverage public and private sources while encouraging low-carbon development. Such combinations would not only exploit the synergies between each financial instrument as each addresses a slightly different set of needs, risks, or barriers, but they could also reduce the transaction costs of navigating the landscape of climate finance. Concrete examples can be found in the document *Beyond the Sum of Its Parts—Combining Financial Instruments for Impact and Efficiency*, published in June 2010.

Most international funds for addressing adaptation and mitigation action are channeled through national implementing entities. Cities have a significant role in shaping and responding to the international agenda. Cities can be subject to **measuring, reporting and verifying (MRV)** of greenhouse gas emissions and are in a position to mobilize resources through the carbon market. Publicly available **climate urban risk assessment** can also be conducted at the city level to facilitate adaptation action.

In some cases it may be more effective to internalize externalities in cities where the feedback loop between executor and beneficiary is shorter than at the national level. Partnering directly with cities can be an effective way for the global community to channel Fast Start Finance for climate investments to bring about more-immediate and

comprehensive impact. (In the Copenhagen Accord, developed countries committed to provide \$30 billion Fast Start Finance for adaptation and mitigation action in developing countries during 2010–12.)

To enhance the role of cities in becoming effective conduits for climate funding, the **following responses could be considered by cities and the international community**:

- City-specific infrastructure investment plans could be based on low-carbon solutions consistent with Nationally Appropriate Mitigation Action as defined by national authorities and subsequently by the UN Framework Convention on Climate Change. National governments could aggregate city plans.
- City-specific incentive funds could be established on an experimental and time-bound basis, subject to rigorous MRV of both financial flows and impact to demonstrate the feasibility and effectiveness of the approach.
- Selected cities could have direct access to grant funding to supplement investments in poverty reduction through National Implementing Entities for the Adaptation Fund.
- A specific percentage of other climate finance for adaptation (e.g., the PPCR) could be allocated to urban centers in the selected countries where programming is currently ongoing, subject to robust climate-risk screening.
- Provided that the Clean Technology Fund is replenished, a percentage could be allocated to urban areas with standardized peer-reviewed GHG emission baselines, as cities are likely to be the primary beneficiaries of related mitigation action (as well as the most able to enact large-scale mitigation programs).
- Capacity building could be undertaken by U.N. agencies and MDBs to enable municipal staff to plan low-carbon and climate-resilient development and to design investment programs through a combination of resources (climate funds for incremental costs, other public and private sources for core investments).

**Incremental funding or specific incentives are needed for cities to catalyze adaptation and mitigation action** in an environment of extreme scarcity of resources and a range of other pressing requirements. The suggestions made here may provide a way forward to ensure that scarce climate finance resources are used in as climate-resilient and low-carbon a manner as possible.

## ANNEX. MAIN INSTRUMENTS FOR FINANCING CLIMATE ACTION IN THE URBAN CONTEXT (A=ADAPTATION; M=MITIGATION)

More details available from [www.climatefinanceoptions.org](http://www.climatefinanceoptions.org)

### CLIMATE-SPECIFIC ADDITIONAL RESOURCES UNDER THE AEGIS OF UNFCCC

<b>Adaptation Fund</b> \$300–600 million by 2012 <a href="http://adaptation-fund.org">adaptation-fund.org</a>	<b>A</b>	The overall goal of all adaptation projects and programs financed under the Adaptation Fund will be to support concrete adaptation activities that reduce the adverse effects of climate change facing communities, countries, and sectors. Can be implemented at the city level. Applications through national designated authorities and implementation through accredited Multilateral or National Implementing Entities.
<b>Global Environment Facility (GEF)</b> \$1.35 billion over 2011–14 <a href="http://gefweb.org">gefweb.org</a>	<b>M</b>  <b>(A)</b>	Largest source of grant-financed mitigation resources. Strategic Pilot on Adaptation is a funding allocation within the GEF Trust Fund to support pilot and demonstration projects that address local adaptation needs and generate global environmental benefits in all GEF focal areas. Cities can initiate new projects or be implementation partners with national agencies.
<b>UNFCCC GEF-administered Special Funds</b>  LDCF: \$223 million SCCF: \$148 million <a href="http://gefweb.org">gefweb.org</a>	<b>A</b>	Least Developed Countries Fund (LDCF): helps in the preparation and financing of implementation of National Adaptation Programs of Action to address the most urgent adaptation needs in the least developed countries.  Special Climate Change Fund (SCCF): supports adaptation and mitigation projects in all developing countries, with a large emphasis on adaptation.

### RESOURCES FROM THE CARBON MARKET

<b>World Bank Carbon Funds and Facilities</b> Size: 11 funds and facilities entrusted with \$2.5 billion <a href="http://carbonfinance.org">carbonfinance.org</a>	<b>M</b>	Cities can access CDM funds through the sale of certified emission reductions (CERs) to carbon funds. CPF can support cities in preparing CDM activities on a programmatic scale.
<b>Carbon Partnership Facility (CPF)</b> \$100 million		World Bank Carbon Finance Unit can support in monetizing CERs.

### DEDICATED CONCESSIONAL FUNDING (ODA) FROM THE DAC COMMUNITY

<b>Climate Investment Funds</b>  \$6.4 billion <a href="http://climateinvestmentfunds.org">climateinvestmentfunds.org</a>	<b>M</b>	The Clean Technology Fund (\$4.5 billion programmed for 13 investment plans): to finance scaled-up demonstration, deployment, and transfer of low-carbon technologies. Major urban mitigation (transport and energy) investments in Bangkok and Mexico City; others are possible provided more funds pledged for programming.
World Bank administered, implemented by MDBs	<b>A</b> <b>M</b>	The Strategic Climate Fund: Pilot Program for Climate Resilience (\$1 billion programmed for nine pilot countries and two regions) to help build climate resilience in core development; Forest Investment Program (\$587 million for eight pilot countries); Program to Scale up Renewable Energy for Low Income Countries (SREP, \$318 million for six pilot countries). Urban upstream planning support and city-based investments possible to integrate into national plans now being formulated in agreed pilot countries.
<b>Reducing Emissions from Deforestation and Forest Degradation programs (REDD+)</b>  \$4 billion in pledges as Fast Start Finance following the Copenhagen Accord		Two major REDD funds fully or partially run by the World Bank, the Forest Carbon Partnership Facility and the Forest Investment Program (under the Climate Investment Funds), have already received over \$700 million in pledged funding for pilot programs in forested developing countries and are currently commencing implementation. Cook stove programs can still be integrated into reduced-deforestation country strategies and implementation plans. Their impact at the urban level is the reduction of GHG and black carbon emissions in low-income areas with corresponding health co-benefits.
Examples of other climate funds and their volumes:		Cities can get access to these funds through cooperation in the national programming process:
\$10 billion \$180 million p.a. \$160 million \$135 million	<b>M &amp; A</b> <b>M &amp; A</b> <b>A</b> <b>M &amp; A</b>	Hatoyama Initiative (Japan) International Climate Initiative (Germany) Global Climate Change Alliance (European Commission) International climate Change Adaptation Initiative (Australia)

### EXAMPLES OF NON CLIMATE-SPECIFIC SUPPORT FROM DONORS AND MDBS

<p><b>Global Facility for Disaster Reduction and Recovery (GFDRR)</b></p>	<p><b>A</b></p>	<p>Partnership within the U.N. International Strategy for Disaster Reduction initiative, focusing on building capacities to enhance disaster resilience and adaptive capacities in a changing climate. About two-thirds of GFDRR's assistance has had a primary focus on climate change adaptation—that is, more than \$27 million in nearly 90 countries across the world. GFDRR support has leveraged an additional \$17 million of cofinancing from development partners and greater amounts from World Bank investments.</p> <p>The GFDRR Technical Assistance Fund is a global fund established through contributions of GFDRR partners into a multidonor trust fund. The Callable Fund is a fund-in-readiness to be activated when disaster strikes. This multidonor trust fund provides an innovative approach in that donors enter into an agreement with the World Bank ex ante a natural disaster to support the Callable Fund; however, actual funds are mobilized ex post a natural disaster through a Call for Funds.</p>
<p><b>International Development Association</b></p> <p>World Bank core concessional loans for low-income countries</p>	<p><b>A</b></p> <p><b>(M)</b></p>	<p>To be developed as part of national initiatives and with national authorities:</p> <ul style="list-style-type: none"> <li>- Development Policy Operations to build resilience into city budgets</li> <li>- Adaptation action at city level</li> <li>- Mitigation action at city level</li> </ul>
<p><b>IBRD, MDB, and bilateral core funds</b></p>	<p><b>A</b></p> <p><b>M</b></p>	<p>Stand-alone or in combination with climate-specific funds city-based adaptation and mitigation interventions as part of national programs and with national authorities</p>
<p><b>Trust Funds and Partnerships; Guarantees</b></p>	<p><b>M</b></p> <p><b>A</b></p>	<p>Grant financing for knowledge products, capacity building, upstream project work/pilots; partial risk guarantees to support development / adoption / application of clean energy technologies, including those not fully commercialized, in client countries.</p>
<p><b>Climate insurance products</b></p> <p>World Bank Treasury, etc. fee-based or donor-supported</p>	<p><b>A</b></p>	<p>Risk financing strategy development</p> <p>MultiCat products with cities with parameter-based triggers</p> <p>CAT swaps for extreme flood risk, etc.</p> <p>Multi-city insurance products for risk sharing and lower cost</p>
<p><b>Climate bonds</b></p> <p>World Bank Treasury, etc. fee-based or donor-supported</p>	<p><b>M</b></p> <p><b>A</b></p>	<p>Bonds against city CERs or Nationally Appropriate Mitigation Actions (NAMAs)</p> <p>Advice on monetizing carbon bonds</p>
<p><b>Public-Private Partnerships</b></p>		<p>World Bank Public-Private Infrastructure Advisory Facility or other similar schemes can provide technical assistance and matchmaking in the planning and operationalizing of urban NAMAs through the improvement of an enabling environment and strategic public intervention conducive to long-term private sector commitment</p>
<p><b>Private sector</b></p>		<p>International Finance Corporation and other MDB private-sector arms can provide technical assistance and financial support to investors in climate-resilient infrastructure or low-carbon technologies through a combination of risk management and other concessional instruments, bringing the cost to a level attractive for long-term private investment</p>



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