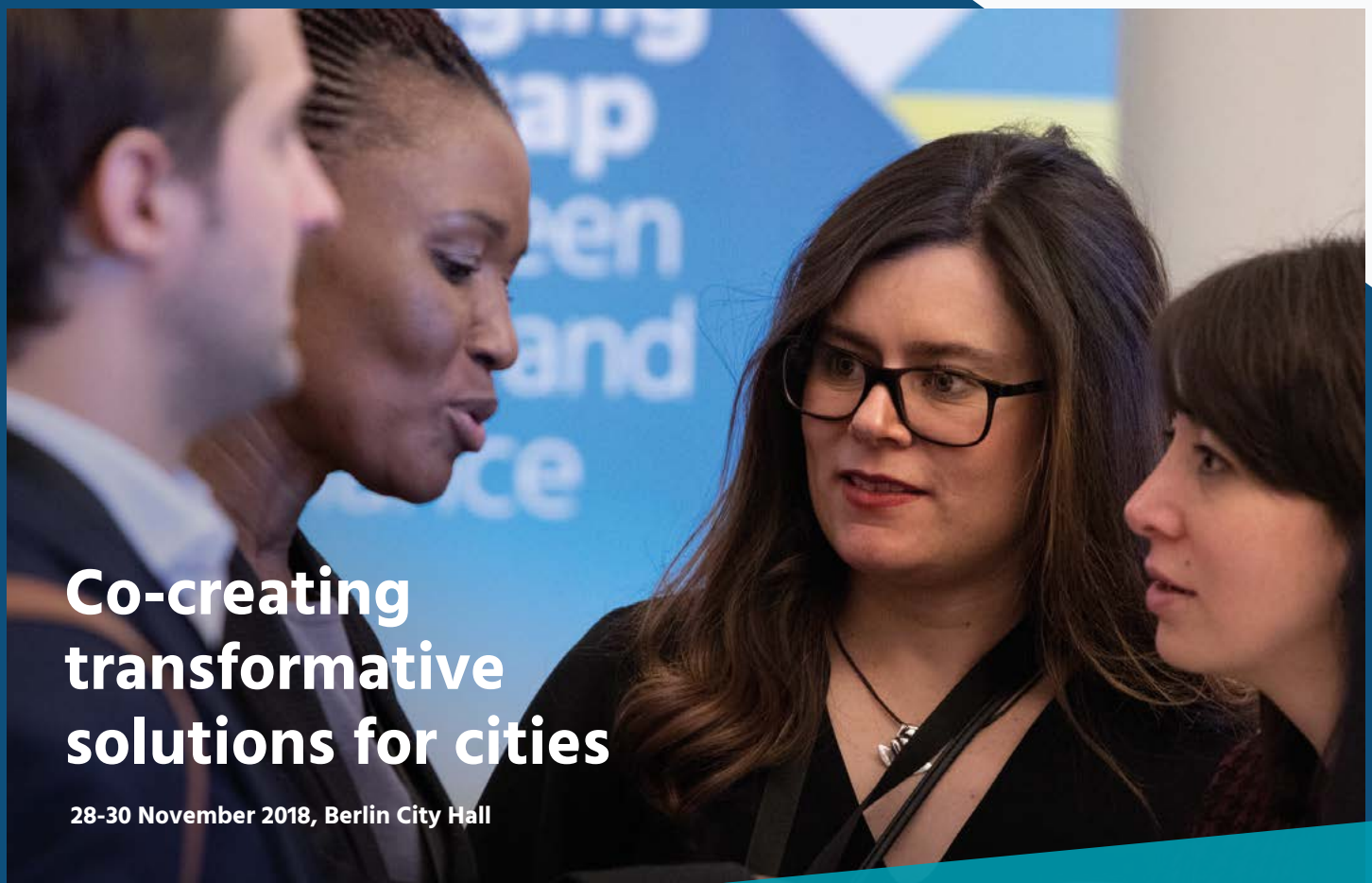
CFFactory

C40 CITIES FINANCE FACILITY

be Berlin



Co-creating transformative solutions for cities

28-30 November 2018, Berlin City Hall

»We need an institutional revolution«

Aniket Shah's keynote concludes that we are not moving fast enough to make the changes the world needs.

Nine new CFF partner cities announced

Leading global experts provide specialist advice to develop sustainable infrastructure projects.

Transforming cities and finance to address climate change

New CFF report on how to achieve large-scale, sustained and catalytic emissions reductions and enhanced resilience.

Co-creating transformative solutions for cities

28-30 November 2018, Berlin City Hall

From 28 to 30 November, the CFFactory brought together in Berlin representatives from cities, national governments, financial institutions, NGOs and the private sector for its international conference on cities, climate change and finance. The aim of the event, hosted by the C40 Cities Finance Facility (CFF) in cooperation with the Senate of Berlin, was to share the CFF's approach and experiences with those working in the field of project preparation and financing and to promote cooperation between cities, financiers and other stakeholders in this field.

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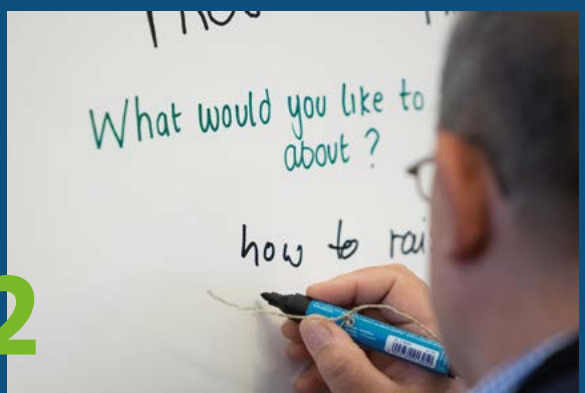
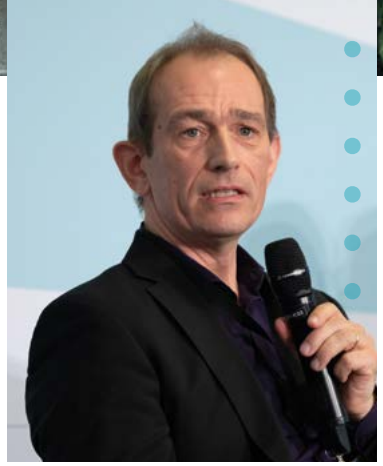


www.c40cff.org/cffactory



Working with cities to create investment-ready green projects

Twenty years ago, Curitiba and Bogotá faced the challenge of finding new solutions to move people around their expanding cities. Unwilling to bear the high cost of metro infrastructure, these cities innovated with bus transportation, creating the system now known and applauded worldwide as Bus Rapid Transit. Because it worked, hundreds of cities across the world, from the poorest to the richest, have since followed suit. Such innovations come from visionary mayors and passionate city officials, working hard to deliver the goal of a sustainable and inclusive urban future.

One such visionary was former Mayor of Rio de Janeiro, Eduardo Paes. In 2015, he approached C40 to find a way of breaking down the finance barrier that all-too-often stops transformative city projects in their tracks. At Mayor Paes' instigation, C40 partnered with the German Development Cooperation agency GIZ to launch the C40 Cities Finance Facility (CFF) at COP21. This was supported by forward-thinking government donors from Germany, the United Kingdom and United States. Our joint mission: bringing people and their skills together – to bridge the gap between available finance and cities, where it's urgently needed.

In 2018 the CFF gathered the sustainable finance community, city leaders, academia and urban practitioners for the CFFactory in the C40 city of Berlin. Fittingly named, the factory focused on tangible challenges and looked at the mechanics of sustainable infrastructure finance in cities. Participants shared techniques and mechanisms to address the challenge of financing projects and find new solutions to support cities to play their full part in delivering on the goals of the Paris Agreement.

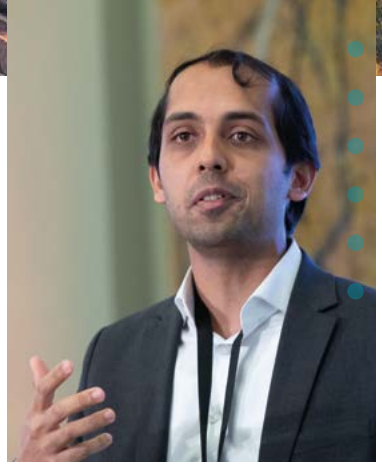
Featuring projects the CFF is supporting, including cycling in Bogotá, electric bus corridors in Mexico City and community-based climate adaptation in Durban, the CFF announced 9 new cities selected for support in the CFF's second phase of funding until 2021.

The CFF's work is truly transformative – a point clearly demonstrated by a new report published at the CFFactory. Ensuring major infrastructure projects achieve a sustainable financing solution is a highly significant outcome, but working with cities to identify and build skills and experience to construct thousands of kilometres of bike lanes, purchase hundreds of electric buses or rehabilitate vital streams and storm water canals without needing external assistance delivers deep transformation. The pieces in this magazine show the tangible new financing options that emerged from participants' co-creation at the CFFactory. C40 and GIZ will take this further and continue to innovate, aiming to ensure the CFF and our wider work allows cities to focus on the innovative and radical solutions needed. Knowing that together we will find the financing solutions and eliminate the finance barrier.

We hope you enjoy reading!

Joachim Göske,
Director Global Policy and Governance,
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Mark Watts,
Executive Director,
C40 Cities Climate Leadership Group



We need an institutional revolution

In his keynote address, Aniket Shah asserted that we lack the right institutions for the low-carbon transition. A fundamental rearrangement of institutions is therefore needed if climate change mitigation and adaptation is to be effectively financed. According to Aniket, it is conferences like the CFFactory that provide the space for participants to forge a proactive and actionable way forward.

There is a big conundrum that I have been trying to solve for some time. We all know that there is more than enough financial capital available to finance the low-carbon transition. We all know that the technologies to build sustainable urban infrastructure exist. We also know that, although the urgency to develop and implement climate change infrastructure projects is increasing, there are not enough bankable projects. But if we know all that, why aren't we making more progress towards a low-carbon future?

My view is that we actually do not have the right institutions in place to finance a low-carbon transition. I believe that, we will require a fundamental revolution of our institutions in order to finance climate change mitigation and adaptation. Although cities are important and, over time, will play a larger role on the world stage, the idea that cities will be able to do this on their own is simply not true. Cities are not autonomous. They operate within national, regional and global frameworks, which impose political and financial dependencies on them. Many cities are hamstrung when it comes to being able to raise public finance for their own use. Cities themselves can only raise a certain percentage of the funding they need, so they must seek external financing from their own national government, from investors and from public officials from around the world.

In general, discussions like those held at the CFFactory are very technocratic in nature, focusing on getting the right engineering solutions or the right financial instruments. I think, however, that what we really need to do is to determine whether our political system corresponds with that needed for a big transition. This can be an uncomfortable process, but it is a question that we must address as a society and as a group of practitioners operating in this space.

The third part of this institutional revolution needs to look specifically at organisations. Do we have the right financial organisations, right policy organisations and right academic organisations and are they able to move at the speed needed to finance this type of transition to a low-carbon future? The few that we do have are still too small. Furthermore, at the city level, adequate financing organisations are still lacking. With regard to achieving institutional revolution in the areas of sustainable finance and city-level infrastructure financing, there are five ideas I would like to share:

> **We are not moving fast enough to deliver the kinds of changes the world needs.**

1. We need to learn from our transformational experiences. Over the last 50 to 60 years there have been periods where economies of all scales have absolutely transformed themselves and where, in the space of 10 to 15 years, an economy has come to look very different than it did initially. Analysing such transformational experiences will provide many lessons for cities.

2. I would advise policy-makers and climate finance practitioners to map and understand three parts of their institutional landscape: rules and policies, political arrangements, and the organisations in place. This activity should provide answers to questions such as: What shape should the rules of the game take? In other words, what policies, regulations and legal arrangements are required?

3. Cities need to support experimentation and flexibility. We will have to learn as we go. Unfortunately, electorates do not give public officials enough time for experimentation. Nevertheless, the questions around how we learn and how we take on board that learning and use it to evolve our institutional set-up are of great potential.

4. Cities need to be context-specific; there is no one-size-fits-all solution. Approaches will therefore require multiple changes to fit the context.

5. Investors will only allocate money at scale if they do not have to spend too much time thinking about it. If we expect private investors to invest on a project-by-project basis, financing is going to continue at a snail's pace. We need to think in terms of how international finance is pipelined. Take the example of 'impact investing' schemes. Drawing on their understanding of the financial system, the development finance institutions (DFIs) designed the schemes in such a way that a central bank, insurance company or asset manager could buy the bonds offered without even knowing what they were financing.

In this context, the C40 Cities Finance Facility (CFF) has played an incredibly important role when it comes to brainstorming ideas. We need a lot more thinking around what we can do together as a group of practitioners in this space.

The most useful thing that cities can do to move this agenda forward is propose projects that we can invest in. A simple, clear methodology and list of projects that are aligned with the needs of private investors will push this space forward more quickly than anything else we can do together.

My key takeaways from the CFFactory are that:
- the urgency for an institutional revolution is increasing – even though we had a good start, we need to move a lot faster than we currently are; and
- while we have the people, the ideas and the energy, we are not moving fast enough to deliver the kinds of changes the world needs.

In this context, conferences like the CFFactory provide the space for us to forge a proactive and actionable way forward.

Aniket Shah,
Head of Sustainable Investing at
Oppenheimer Funds

CFFactory-inspired insights

»The conference has brought together multiple perspectives: investors and city officials, from both the DFI [development finance institution] community and the private sector community. That's been very useful for identifying the challenges and how we, as a community, can address those challenges.«

Lisa da Silva,
IFC Global Cities Practice

»I am taking away the imperative of scale: even our most ambitious collaboration [with] cities to develop support for project finance is magnitudes smaller than what is required. Cities have the opportunity to work in ways that can deploy much larger amounts of money than they think [is possible].«

Holmes Hummel,
Clean Energy Works

»I know that adaptation is a financial risk. But the worldwide dilemmas – from the USA to China – require all these leaders to take that risk and provide additional funding for climate-induced challenges.«

Tala Khrais,
VNG International

»Many [of the] challenges we've discussed are around perceptions of technology risks and emerging technologies. Finding ways to hedge against the perception of these risks is crucial to get the right financial actors on board to kick-off and to scale projects.«

Dario Abramskiehn,
Climate Policy Initiative

»CFFactory was unique. With the help of CFF, cities are able to mainstream climate change into the project structure and ensure that it can become viable in the market. Creating bankable projects with strong business cases is something that helps to solve a lot of urban challenges.«

Rishika Das Roy,
Oxford Policy Management

»There are great opportunities with the cities all over the world. We need a combination of a CFF-type finance facility: input from cities and governments combined with funds from the private sector.«

Iain Watson,
Green Investment Group

»The spirit of the CFFactory allowed very open conversations. People also put forward critical questions, trying to find out how to improve the system and the cooperation, which is very exciting.«

Joachim Göske,
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

»We've received two types of insights at the conference: on the macro-side, the importance of policy in determining the financial capacity of cities; and from the micro-side, the importance of engagement with local stakeholders.«

Josué Tanaka,
European Bank for Reconstruction and Development (EBRD)

»I'm very excited to see so much product innovation and collaboration happening in the urban climate and resilience space. We need to advance adequate project preparation. Projects need to access the financial instruments that have been proposed today.«

Elisabeth Yee,
100 Resilient Cities

More insights on the conference
www.c40cff.org/cffactory

Transforming cities and finance to address climate change

The CFFactory saw the launch of Transforming cities and finance to address climate change: The example of the C40 Cities Finance Facility, a new CFF report that unpacks the concept of transformation and what it means in the context of the CFF's work on cities, climate change and finance.

In its work with cities, the CFF's ambition is to achieve lasting, relevant and effective impacts in the fight against climate change. Alongside the setting of ambitious, transformative goals, this also requires the establishment of operational principles and practices that will help make these goals a reality. One of the CFF's key principles, for example, is that city administrations themselves define their needs and thus the elements of their cooperation with the CFF.

This report investigates how the CFF's own structures and processes enable transformation.

At the core of the report is a definition of transformation for the CFF combining three different elements:

1 What

The CFF seeks transformation through large-scale, sustained and catalytic greenhouse gas emissions reductions and enhanced resilience within cities;

2 How

By supporting shifts in the systems of cities that remove critical barriers around access to finance and thus enable further action on climate change;

3 Where

The CFF achieves this by strengthening the capacity of cities to develop and finance their climate change projects and by informing the thinking and practice of other cities, practitioners, and national and international policy-makers

The CFF pursues transformation in a number of areas and ways, including:

- **Project selection**: When working with cities, the CFF carefully assesses their projects' climate and environmental impact, scalability potential, socio-economic co-benefits and financing needs, as well as each city's context and the potential implementation challenges.

- **Innovation and new technologies**: The CFF supports the piloting or scaling-up of climate change technologies. Alternatively, it helps cities to access the local or global expertise required to take existing systems or technologies forward in innovative ways.

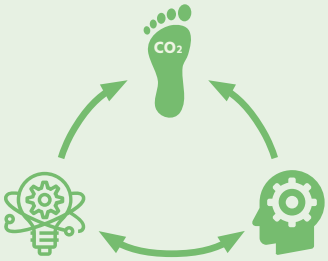
- **Joint capacity assessment**: Based on the capacity gaps jointly identified with city officials using the CFF's capacity assessment approach, a capacity development strategy is prepared that outlines specific measures tailored to each city's individual needs and demands.

- **Ensuring incentive structures**: The CFF supports city administrations to create political buy-in for a project, which involves helping them to increase the economic and business incentives for low-carbon and climate-resilient investments or raising the awareness of city officials, citizens and civil society about how the city can address climate change.

- **Feedback structures, monitoring and evaluation**: The CFF monitors and evaluates all of its projects on an ongoing basis and puts in place institutionalised feedback loops. These systems enable the CFF to remain flexible and thus to adapt its processes to changing circumstances and new developments.

Mexico City

875,809 t projected CO_2e reductions over 10 years*



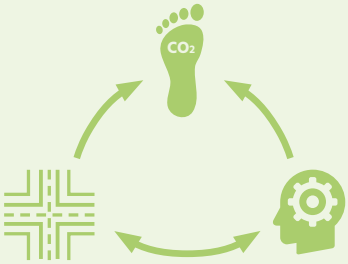
Introduction of a technological innovation for the city

- New institutional processes for coordination across sectors
- Shift in public mindset

* This amount corresponds to the electricity used by 104,875 homes in one year.
Source: Greenhouse Gas Equivalencies Calculator, US Environmental Protection Agency

Bogotá

134,430 t projected CO_2e (2017–50) plus resilience benefits*



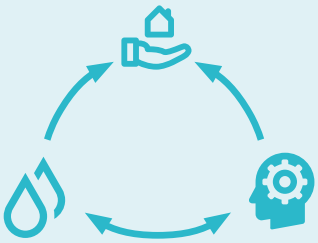
Model for safe, resilient and high-quality cycle lanes

- Mainstreaming of climate change considerations into mobility planning
- Improved inter-institutional coordination

* This amount corresponds to the electricity used by 23,443 homes in one year.
Source: Greenhouse Gas Equivalencies Calculator, US Environmental Protection Agency

eThekwini (Durban)

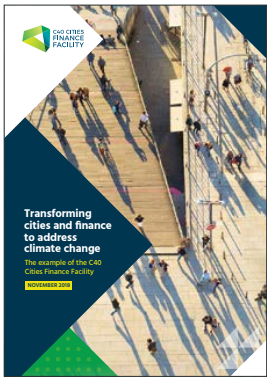
Increased resilience across 4,000 km of waterways* and improved livelihoods



Innovative approach that considers water to be an economic asset

- Shift in how water is viewed as an economic asset
- Enhanced coordination
- Economic incentives for businesses to adjust practices

* This number of km corresponds to more than the distance of a round trip from eThekwini (Durban) to Cape Town.



Transforming cities and finance to address climate change

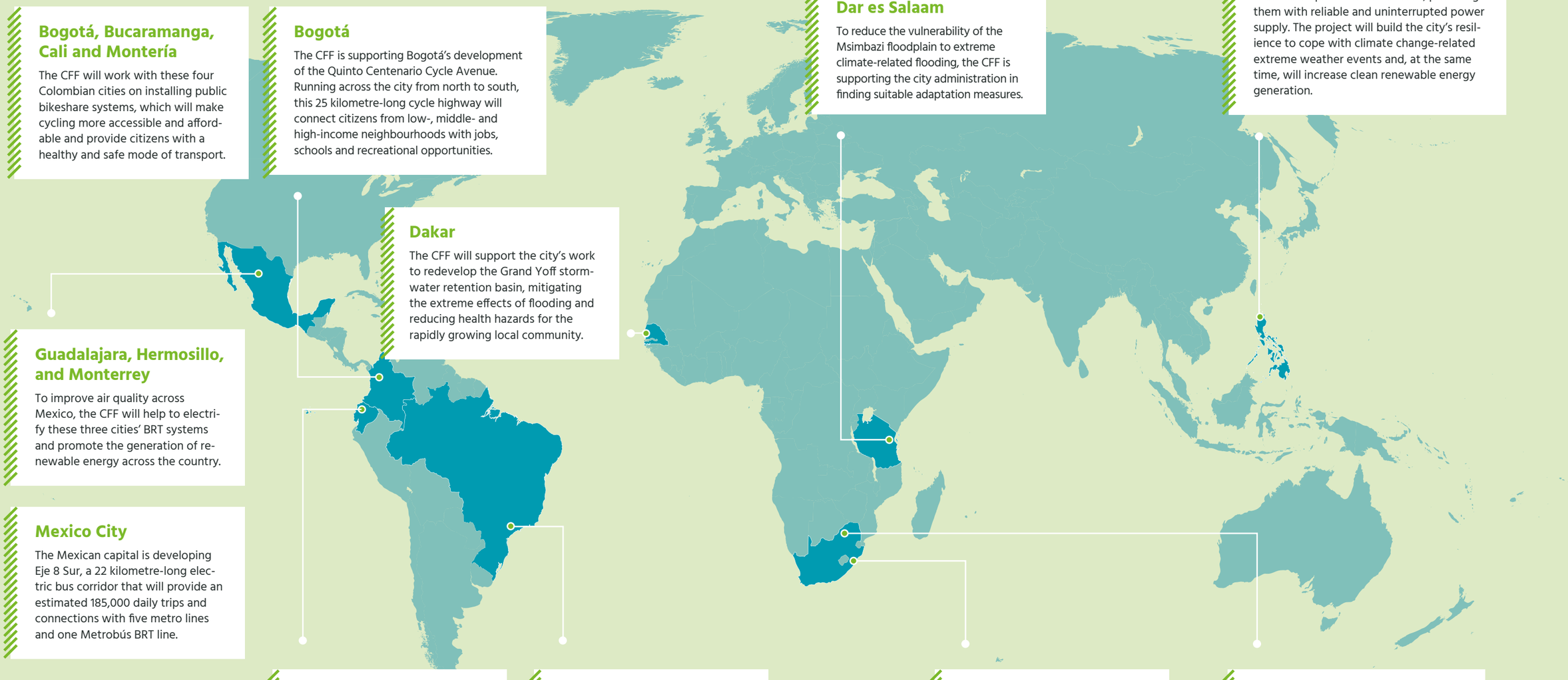
The **Transforming cities and finance to address climate change** report discusses examples from the three CFF partner cities of Bogotá, Durban and Mexico City and explores some of the specific changes – e.g. in institutional structures, inter-institutional coordination, mindsets and partnerships – that provide early indication that transformation is possible.

The full Transforming cities and finance to address climate change report can be accessed via the link below or by scanning the QR code on the right.

http://bit.ly/c40-cff-transforming-cities

CFF partner cities

Since 2017, the CFF has been working with Mexico City and Bogotá on developing bankable climate action projects. During the CFFactory, the CFF announced that a further nine cities are set to receive dedicated advice from leading global experts that will take their great ideas and plans for low-carbon and climate-resilient infrastructure projects and turn them into a fully financed reality. This support will enable each of the cities to develop high-quality infrastructure projects that meet the specific needs of their citizens.



Bogotá, Bucaramanga, Cali and Montería

The CFF will work with these four Colombian cities on installing public bikeshare systems, which will make cycling more accessible and affordable and provide citizens with a healthy and safe mode of transport.

Bogotá

The CFF is supporting Bogotá's development of the Quinto Centenario Cycle Avenue. Running across the city from north to south, this 25 kilometre-long cycle highway will connect citizens from low-, middle- and high-income neighbourhoods with jobs, schools and recreational opportunities.

Dakar

The CFF will support the city's work to redevelop the Grand Yoff storm-water retention basin, mitigating the extreme effects of flooding and reducing health hazards for the rapidly growing local community.

Dar es Salaam

To reduce the vulnerability of the Msimbazi floodplain to extreme climate-related flooding, the CFF is supporting the city administration in finding suitable adaptation measures.

Quezon City

The CFF will work with this Philippine city to install solar panels on 50 schools, providing them with reliable and uninterrupted power supply. The project will build the city's resilience to cope with climate change-related extreme weather events and, at the same time, will increase clean renewable energy generation.

Guadalajara, Hermosillo, and Monterrey

To improve air quality across Mexico, the CFF will help to electrify these three cities' BRT systems and promote the generation of renewable energy across the country.

Mexico City

The Mexican capital is developing Eje 8 Sur, a 22 kilometre-long electric bus corridor that will provide an estimated 185,000 daily trips and connections with five metro lines and one Metrobús BRT line.

Quito

To improve air quality in the Ecuadorian capital and provide greener, healthier streets, the CFF is supporting the electrification of the city's Ecovía BRT corridor.

Curitiba

With assistance from the CFF, Curitiba will install solar panels on four of its bus terminals and on the decommissioned Caximba landfill site. The project will pave the way for the scaling-up of rooftop solar projects across all public buildings and bus stops.

eThekwini (Durban)

To significantly reduce the city's vulnerability to extreme rainfall events and the severity of flooding, eThekwini runs the Sihlanzimvelo programme, a community-operated stream cleaning scheme.

Tshwane

With the CFF's support, this South African city will install a 17 kilometre-long bicycle trunk route through the city and will build a combined heat and power biogas plant at the Zeekoegat wastewater treatment works.

Cities' perspectives – interviews

Bogotá,
Colombia

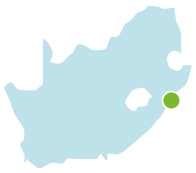
What are the core elements of the project you are developing in Bogotá?
With the C40 Cities Finance Facility (CFF), we have been creating a sustainable corridor for bicycles and pedestrians as well as redeveloping urban areas along the route. The corridor, which is around 25 kilometres long, traverses Bogotá, passing right through the city centre. The scheme has already delivered improvements in the city in terms of equality, accessibility and mobility options.

What makes this project unique?
Creating a corridor through a built-up and dense city like Bogotá is a complex and unique challenge in two main ways. Firstly, the corridor runs through a number of socially disadvantaged areas. With the CFF's help, we evaluated the issues arising in these communities, which enabled us to factor them into the project's technical feasibility study, ensure alignment and thus prioritise the social context of the project. Secondly, working with the CFF, we have developed a methodology for measuring the emissions reductions achieved by the corridor. Armed with the results of the social studies and the emission reduction calculations, we are in a better position to highlight the project's benefits and thus to secure access to climate finance. The CFF has helped us to address the project's different challenges by providing technical expertise for the feasibility study and consultancy support for the analysis of social issues.

What are your main takeaways from the conference?
I have the feeling that both the public and private sectors are on the same side. We both want the same results, so it's just a matter of matching partners and better understanding the risks and our respective fears and goals. That is why programmes like the CFF are so important, as they facilitate this matching process.

Sergio Martinez,
Under Secretary of Sectoral Policy, Bogotá

eThekwini (Durban),
South Africa



What is the purpose of the project you are developing?
The Sihlanzimvelo Programme, which we have been developing with the CFF's support, works to promote the community-based management of thousands of kilometres of the city's watercourses. The Programme will help the city cope with the increase in storms and heavy rainfall caused by climate change, significantly reducing its vulnerability to extreme rainfall events, the severity of flooding, and damage to municipal and residential infrastructure.

How did your city benefit from the exchange with financiers and other practitioners at the CFFactory?
The whole idea of the CFFactory has been very beneficial for us. We have made valuable contacts with funders and are now aware of how to package projects in a way that encourages funders to assist or support them. I have learned that you need to look at the project proposal and ask yourself: Would I fund such a proposal? If the answer is no, then the funder's response will likely be the same. So, I'm going back home with a different mind-set in terms of conceptualising the kinds of support we need from funders.

What key message are you taking away from this conference?
The CFF Transformative Impact Report was an eye-opener for me. 'Transformation' has been a buzzword so far. Now its meaning has become clear, both within the context of climate change interventions and in terms of what the CFF is going to support.

Chumisa Thengwa,
Acting Deputy Head, Environmental Planning and Climate Protection, eThekwini (Durban)

Guadalajara,
Mexico

What project is Guadalajara currently developing with the support of the CFF?
The project that we are going to be working on with the CFF is the Peribús Integrated Transport System. The original project has already been approved by the Government of Mexico, but we are planning to enhance the scheme by substituting the natural gas buses with electric ones. With the CFF's help on developing the feasibility study, we are trying to see how we can make this possible.

Where do you envisage challenges arising in project implementation?
One of the main challenges is in merging the city's different transport operators into one integrated BRT system that uses electric buses and is operated by a single company. How do you integrate the owners of different companies into only one? Another challenge is in convincing the different stakeholders that electric buses are the best choice. Our government experts from different fields agree that electric buses are preferable because they will reduce emissions. They know this because they are experts. The question is how to convince stakeholders with different approaches that this is the right option to invest in. We intend to work on such issues with the CFF and, in so doing, put in place a strong communication and financing strategy for the new system.

What support would you particularly require when seeking to access external finance?
We would need to know how to present a project in bankable terms. We already have the political, environmental and technical expertise, but we lack finance specialists. We therefore need support from finance experts who can help us to manage the financing part of the project.

Claudia Gabriela Canales,
Director, Metropolitan Management Development, Mexico City

Quezon City,
Philippines

Quezon City is developing a project to provide reliable and uninterrupted power supply to 50 public schools using solar power. What are the main challenges arising in this project?
First, adapting the bureaucracy of the municipal government of Quezon City will take some time and effort. Second, we need to build more technical expertise in different areas such as environmental planning, engineering, and even the financial management of the installation, operation and maintenance of the solar panels and ultimately of the sale of the renewable energy they generate. Third, we need to balance the revenue and the finances that the city and national governments can provide to deliver basic social, health and education services against implementing a large project.

How does the CFF support you in those efforts?
The CFF is helping us to operationalise and scale the project. Moreover, we get support on solving important questions: For example, we have just one pilot campus at the moment that is using solar power. How can we cover the remaining 49 schools in Quezon City? How can we harness renewable energy, save on expenses like electricity charges and make use of the surplus of energy? Could we sell this surplus to the electricity companies that operate in our city?

What key idea will you take back home with you from the CFFactory conference?
Projects in the field of renewable energy or other innovation projects provide governments with the opportunity to get the private sector to invest in areas where funding is constrained. In this way, we can make public-private partnership agreements that work for the environment and for the city.

Aldrin Cuña,
City Administrator, Quezon City

CFFactory discussion outputs

Deep dives into cycling, adaptation, zero-emission buses and energy

In a series of interactive conference sessions, CFFactory participants discussed the development of projects from visioning, scoping and preparation to financing, covering the whole project development cycle. Targeted rounds of discussions on cycling, adaptation, zero-emission buses and energy provided insights into project examples from CFF partner cities, highlighting challenges and identifying possible solutions.

Cycling

Promoting cycling in cities as a mode of transport requires both (a) a broader vision based on a city cycle network and citizen engagement and (b) individual projects such as cycle lanes and public bike-sharing schemes. When it comes to cycling, Bogotá is an established leader not just in Latin America but worldwide. Indeed, it is aiming to become the world's cycling capital, with projects such as the Quinto Centenario cycle avenue forming part of this vision. Factory participants, drawing on the presentations from Bogotá, Bucaramanga, Cali and Tshwane, explored ways to address issues such as how to measure and monetise the benefits of cycling and how to engage different stakeholders. The cities address safety and security risks by making them top priorities when planning and designing cycling infrastructure – for example, the projects integrate awareness campaigns for safe cycling and provide for the implementation of a bike police service. This focus helps to ensure that as many citizens as possible will use the new infrastructure. The cities underlined that they see the quality of a cycle network as a vital factor and recommended starting with projects that are easy to implement before tackling the more complex parts of the cycling infrastructure.

Finally, in a session focused on financing, participants discussed how to structure public-private partnerships for bike-sharing schemes, how to attract financing from multilateral development banks, and what levers to activate to increase the amount of inter-governmental transfers dedicated to cycling infrastructure. The preference to dedicate transfers to specific projects and the lack of professional advocacy and lobbying for cycling were identified as barriers to securing more inter-governmental transfers. A political shift is needed to ensure that multilateral development banks can finance cycling projects. Here, legal barriers, difficult repayment regulations, a city's rational reluctance to borrow, and competing priorities at the local and national levels are challenges that practitioners face. When discussing public-private partnerships, an emphasis was placed on the need for shared goals among all partners as well as a sound business model which ensures cities have a financial plan that they can implement over the years to come.

Adaptation

Cities aiming to adapt to climate change often work through a process to identify and evaluate the most suitable and cost-effective ways of addressing projected future climate impacts such as floods, droughts and extreme heat. eThekwini's (Durban) municipal adaptation plan is a key element guiding the city's action to adjust its natural and built infrastructure to withstand these effects and, thereby, to maintain its role as a regional and global leader on climate change adaptation. How, then, can city administrations convert ideas into specific projects tailored to the city's unique layout, its residents' lifestyles and its economic and social conditions? Experts and participants at the CFFactory agreed that projects need to be linked to existing structures if they are to be accepted by the city's residents. Moreover, they need to address viable challenges and produce additional benefits for people. In the case of eThekwini (Durban), one of its adaptation programmes, the Sihlanzimvelo stream-cleaning programme, has a strong social and economic component, creating employment in low-income communities and providing regular business development and management courses. Another key success factor is to work with the city's residents on co-creating the planning, implementation and maintenance of projects. In this way, citizens also come to understand long-term planning horizons and the complexities of cooperating with a variety of different actors when developing sound adaptation models.

Financing urban adaptation projects was also discussed, with the conversation focusing on national climate funds, multilateral development banks, and insurance products such as resilience bonds. Experts and participants debated the suitability of different financing instruments for specific adaptation projects. Given the theoretical nature of resilience bonds, their actual feasibility for climate-relevant urban infrastructure projects in developing countries remains unclear. Examples of national climate funds from Indonesia, the Philippines and Rwanda do, however, show that these approaches have worked well in distributing climate funds to vulnerable parts of these countries.

Zero-emission buses

The transportation sector is one of the most significant contributors to climate change and air pollution. To address these issues, cities need to come up with new, creative approaches to reduce emissions.

Projects such as Mexico City's new Eje 8 Sur bus corridor, which will include a fleet of electric buses as well as cycle lanes, have the potential to show other cities how to shift their bus services to low- or zero-emission technologies. By improving connections between low- and middle-income neighbourhoods, the new bus corridor on Eje 8 Sur will also promote socio-economic development across the area. Based on the experiences of Mexico City and other Mexican cities including Guadalajara, Hermosillo and Monterrey, those participating in the project preparation session discussed technical challenges related to battery performance and shared the knowledge they had gained during the initial planning phase. Challenges for the cities are in the limited suitability of electric buses for many routes due to the distances and topography involved and the need for air-conditioning, and in determining how to incorporate renewable energy so that the corridors are truly zero-emission. Stakeholder engagement was also raised as an important issue: to include existing bus operators in the scheme, Guadalajara developed an approach that involved working together with other levels of government to engage with stakeholders at the district level. Finally, participants discussed demand-management mechanisms for making public transport more attractive and the difficulties arising from political time frames being out of sync with the planning horizons for zero-emission bus projects.

Targeted discussions on financing focused on instruments such as Pay As You Save (PAYS), public-private partnerships, municipal green bonds and climate funds and emphasised ways to reduce the high upfront costs of introducing zero-emission buses. Participants discussed how to structure projects to suit the chosen financing option. With PAYS, what is needed is a combination of multiple financing instruments based on a sound financial analysis of how utilities and operators can save by purchasing electric buses. Local governments can also devote the savings to the expansion of the transport network or to lower ticket prices. For public-private partnerships, the institutional set-up is crucial to ensure long-term financial security.

Energy

The availability of cheap, reliable energy is one of the major drivers of economic development. Cities, as the main engines of economic growth, have an increasing demand for energy. However, if this energy comes from fossil fuel sources, a rise in urban greenhouse gas emissions will result.

During a session on how to scope potential projects, the new CFF partner cities of Curitiba, Quezon City and Tshwane presented their plans for introducing renewable energy technologies, including waste-to-energy systems and solar panels. The session speakers and attendees discussed potential challenges and provided advice on possible solutions. The challenges discussed ranged from financial concerns – such as high initial investments – to community engagement. Regulatory issues (e.g. how to sell surplus energy to the utility) and ways to deal with these issues by involving the private sector or lobbying for regulatory changes were also discussed. With respect to waste-to-energy projects, the importance of a steady waste supply and having control over its quality was covered, as were the project's social impacts. A need for more technical and financial expertise was identified as a core challenge in all projects.

How instruments were selected and addressed

Participants had the opportunity to vote on what they considered to be the most appropriate financing instruments for each type of project. In three parallel sessions on cycling, zero-emission buses and adaptation, attendees prioritised three or four instruments for discussion with city representatives and experts.

The CFF had previously created a list of more than 10 instruments per type of project. The parallel discussions focused on the suitability of particular instruments, their leverage potential and the actors involved, and they built on cities' experiences of and experts' advice on the financing of infrastructure projects.

Reverse pitching on financing instruments

Instruments from the public sector

Carbon markets: An innovative financing tool for generating city-level finance

Mandatory carbon markets – in the form of a municipal emissions trading system (ETS) – can generate finance if they auction a share of emissions permits to entities rather than distributing them free of charge. City-level ETSs currently exist in Asia, for example in Beijing, Shanghai and Tokyo.

Voluntary carbon markets, where financing is generated through the sale of offset credits from municipal mitigation activities, may provide an alternative route. For this, there must be careful consideration of where the demand for such credits lies. One option may be to encourage local companies to buy locally generated offsets for greening their business operations. The International Carbon Action Partnership (ICAP) is a forum for governments and public authorities that have implemented or are planning to implement an ETS, and it shares relevant best practices and learning.

More information
https://icapcarbonaction.com/en/

Climate finance for cities: The Green Climate Fund

To support the international climate change agenda, various global funds have been established that provide concessional loans and technical assistance grants to climate-smart infrastructure projects.

The Green Climate Fund (GCF) is a financial mechanism under the UNFCCC that helps fund mitigation and adaptation projects in developing countries. The key ambition of the GCF is to promote a paradigm shift towards low-emission and climate-resilient development pathways. GCF financing instruments are diverse, comprising grant schemes and concessional loans as well as equity and guarantees that are also available to sub-national entities but dependent on certain access modalities. The GCF has built a dedicated portfolio of one billion US dollars for cities to leverage public capital and crowd-in private investments in sustainable urban infrastructure projects.

More information
https://www.greenclimate.fund

Pooled funds: Innovations to improve WASH financing (USAID's WASH-FIN)

Pooled financing instruments enable municipalities to aggregate their borrowing needs while reducing their individual risk profile and achieving lower transaction costs vis-à-vis capital investors.

USAID's WASH-FIN aims to close financing gaps to achieve universal access to water and sanitation services through sustainable and creditworthy business models, increased public funding, and expanded market finance for infrastructure investment. WASH-FIN provides technical assistance and services to help municipalities and utilities track and mobilise greater financial resources for improved service delivery. To increase the flow of private finance into the sector, WASH-FIN promotes pooled funds to aggregate the borrowing needs of cities, creating a larger debt instrument that is attractive to investors.

More information
https://www.globalwaters.org/WASH-FIN

De-risking sustainable urban infrastructure projects: European Bank for Reconstruction and Development (EBRD)

Global financial institutions such as multilateral development banks provide credit enhancement and guarantee instruments to help municipalities to achieve lower risk profiles and improved lending conditions.

The EBRD's Green Cities Framework is available for cities located in the Southern and Eastern Mediterranean, Central and Eastern Europe and Central Asia that have at least 100,000 inhabitants, and it offers these cities targeted financing options and technical support to de-risk and implement sustainable urban infrastructure projects. Through working on Green City Action Plans, the participating cities identify priority environmental challenges and consequent green investments. Different financing instruments with an investment size of EUR 2–150 million are available to governments, municipalities, municipally owned utility companies and private companies providing municipal services.

More information
www.ebrd.com

Instruments from the private sector

Joint ventures to finance, build and operate sustainable urban infrastructure projects: Macquarie Green Investment Group

Partnerships between the public and private sectors can be structured as joint ventures where both parties take a share in the entity that is building/operating the infrastructure asset.

Macquarie Green Investment Group (GIG) targets scalable investments in green infrastructure projects across established and emerging technologies, at all stages of the project lifecycle, offering a diversity of financial services and products. Cities can engage with the GIG through joint-venture structures, such as energy services agreements, public-private partnerships (which are adjusted to the specific project context) and corporate green loans. Energy savings or income generated is split between the joint-venture partners according to the contractual mechanism, with performance sharing through equity ownership.

More information
http://greeninvestmentgroup.com/

Public-private partnerships for smart and resilient infrastructure in cities: EY and 100 Resilient Cities

Different types of public-private partnership (PPP) are available to municipalities. These range from a limited role for the private sector, which is only contracted for the construction or operation of an infrastructure project, to a larger role where the private sector is mandated to design, build and operate the infrastructure asset.

A joint study conducted by 100 Resilient Cities (100RC) and EY looked at how cities build resilience-thinking into PPP infrastructure projects. The three main findings revealed a perception gap between public and private players in terms of how well they understand and apply resilience-thinking, the common challenge of building in resilience-thinking across the various stages of the project lifecycle, and a lack of incentives for incorporating resilience-thinking into infrastructure projects. Key deterrents to the financing of solutions were specifically identified as insufficient regulatory incentives and the challenge of activating new revenue streams in cities.

More information ey.com/citizentoday

Pay As You Save (PAYS®) for Clean Transport: Clean Energy Works

PAYS is a proven approach for accelerating utility investment in the energy efficiency of buildings, providing an investment strategy to overcome barriers to investment at scale without imposing additional liabilities on customers.

PAYS for Clean Transport proposes an innovative business model to accelerate clean transit in cities by lowering the upfront costs of electric buses through a Pay As You Save mechanism. In this model, the utility invests in batteries and charging stations and recovers the costs through a charge on the bus service provider's electricity bill. The PAYS tariff ensures that the operating costs of an electric bus will be less than the estimated operating costs of an equivalent diesel bus. The utility will also fully recover its investment cost within the warrantied period of the battery and charging equipment.

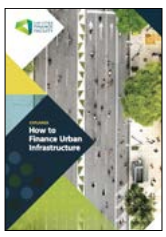
More information
www.cleanenergyworks.org/home/clean-transit

Blueprint of a City Fund: Multi-Region Assistance Project-Revolving Investment for Cities in Europe

Revolving funds at the city level are flexible financial instruments for investing in climate-smart urban infrastructure projects beyond fiscal-year limitations. Through the involvement of public resources, city funds seek to attract private sector investors to join the scheme and deploy additional capital.

The Blueprint of a City Fund developed by PwC in cooperation with the European Commission envisions a city-led financial instrument that is independently managed and follows an investment strategy aligned to the city's strategic priorities, achieving significant leverage of the public investment. The key factors involved in such city-level revolving funds are an expert team at the city level supporting the development of the fund, an independent fund manager, adequate products for the respective market gap and projects' needs, and an investment-friendly structure to attract additional capital.

More information
https://www.amberinfrastructure.com/media/1968/mra_rice-booklet_web.pdf



For further information on urban infrastructure financing instruments, please refer to the CFF publication Explainer: How to finance urban infrastructure?, available at www.c40cff.org/knowledge-library/explainer-how-to-finance-urban-infrastructure

Cities need to lead the way on climate protection

Especially in times where many national governments are setting other priorities, cities need to lead the way on climate change, said Sawsan Chebli in her welcome speech at the evening reception of the CFFactory. In order to succeed in this endeavour, cities need to acknowledge and emphasise the special role citizens play in responding to this threat.

Berlin is among the founding members of C40, and one of 27 cities in the C40 network whose emissions have already peaked and are now declining over previous levels. Green development and green growth are important to the people of Berlin and that has helped us to turn the tide. With the energy and climate protection program that the Berlin House of Representatives adopted in January 2018, we are on the right track to become a climate-neutral metropolis in the years to come.

> **»Berlin shows that simple behavioural changes can make a difference«**

We can now see that not only in the priorities set Senate of Berlin by Berlin's government coalition but also in many smaller initiatives launched by Berliners themselves. For instance, in 2018, a Berlin fundraising campaign collected more than € 250,000 in donations to plant more trees in the city. More and more people are using bicycles for their daily routines. In 2018, the Senate provided a total of € 200,000 to support the purchase of cargo bicycles. More than 1,000 applications were submitted on the very first day, by far exceeding the available funding.

These examples of Berlin show that addressing climate change does not always require a lot of money, sometimes just simple changes of behaviour can make a difference.

The C40 Cities Finance Facility (CFF), which is based in Berlin and London, helps cities access financing for climate projects. But CFF does not do it alone. It can count on a large network of partners ready: C40, GIZ, the Federal Ministry for Economic Cooperation and Development, the UK Department for Business, Energy and Industrial Strategy, USAID and, of course, the Berlin Senate. One great thing about this cooperation is that CFF has managed to draw attention to climate issues again and again and to raise public awareness.

Policy-makers also need to set the right course with the means they have at their disposal. And that was happening in November this year: The Governing Mayor of Berlin, Michael Müller, took part in a C40 event in Barcelona called „Cities getting the job done". In my opinion, having cities lead the way on climate change is the right approach, especially in times where many national governments are setting other priorities.

Let me add that it is not only the cities that are working to counter climate change, but citizens play a special role in responding to this threat. In this spirit, I do not only thank the entire CFF and C40 team and GIZ for organising the CFFactory conference, but all participants as citizens who made a commitment to their cities. Only by working together we can manage to meet the challenges of climate change.

Sawsan Chebli
Permanent Secretary for International Relations, Senate of Berlin

The CFFactory – a microcosm of climate action

The CFFactory's master of ceremonies Sonja van Renssen thinks that the conference is one of the most fruitful events she has ever attended. Why? Because it provided her with plenty of answers and revealed numerous similarities between different countries' and regions' challenges around energy transition.

At the CFFactory, I have learned that a single project, however humble it is per se, can be transformative. The plan to build a multi-kilometre cycle path may not sound like much. But if it is part of a whole new way of thinking about mobility or even about an entire city (as happened in Bogotá), then that one cycle path can catalyse far-reaching changes that affect everything from emissions to social cohesion to inhabitants' happiness.

As heads of state and government were preparing to meet at COP24 in Katowice, Poland, to hammer out the next steps for the Paris Agreement, city representatives and financiers came together for the CFFactory in Berlin to share expertise on creating more sustainable infrastructure in cities. The 'factory' theme implied a hands-on approach and a production-line-inspired agenda, with sessions progressing from project vision, scoping and preparation through to financing.

This was not the kind of conference where you sat at the back checking your emails. City representatives and finance experts worked side-by-side to build a better understanding of how to increase cities' access to finance and then get that translated into real, transformative projects. Whether they involved cycle paths, zero-emission buses or clearing litter from urban waterways, the projects were rooted in visions of cities that are humane, green and democratic. We spoke about the value of public space, community and resilience.

What struck me most was how similar some of the arguments around climate action are, no matter where you are in the world. In Brussels, EU negotiators are working hard to finalise the EU's Clean Energy Package, which will install a new legislative framework for 2030. One of the big debates is around what rights households have to produce and consume their own energy. In a session looking at energy projects in Berlin, that city's debate around whether net metering (selling to the grid any surplus energy generated by, for example, rooftop solar panels) should be permitted bears remarkable similarity to discussions on this issue in the Philippines. One can therefore conclude that, in both cases, regulatory barriers are a problem.

Meanwhile, a representative from eThekwini (Durban) emphasised that people's biggest fear in relation to the energy transition is that it will result in job losses. This question persists in Europe too – just look at the passions raised in the debate around a coal phase-out in Germany or the switch to electric cars.

The CFFactory also stood out in the way it brought to the table topics that are less often broached. I have never been to a conference that had a work stream dedicated to cycling. Zero-emission vehicles are usually cars, not buses. And, sadly, adaptation is seldom granted a hearing in the EU institutions of Brussels.

The higher levels of government – national, European, global – are critical because they set the framework within which cities can act. Yet it was refreshing to see in Berlin just how much activity is bubbling up from underneath. Cities are showing what is possible. In future perhaps, in addition to horizontal exchange, the CFF could also facilitate vertical exchange on projects and their impacts. The CFFactory was in many ways one of the most fruitful events I have attended, mostly in terms of its ability to create a community. It is a rare and wonderful thing to leave an event with the feeling of being part of a new family that, while it may not meet again soon, will be boisterous when it does.

Sonja van Renssen,
Freelance Energy, Climate and Environment Journalist

Co-creating transformative solutions for cities

28-30 November, Berlin City Hall

About the C40 Cities Finance Facility

The CFF is a collaboration of C40 Cities Climate Leadership Group and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. The CFF supports cities in developing and emerging economies to develop finance-ready projects to reduce emissions limiting global temperature rise to 1.5°C above pre-industrial levels and strengthen resilience against the impacts of a warming climate. The CFF is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ), the UK Department for Business, Energy and Industrial Strategy (BEIS) and the United States Agency for International Development (USAID).

Acknowledgements

This magazine was prepared by Julia Rohe-Frydrych and Christopher Stolzenberg of adelphi on behalf of the C40 Cities Finance Facility (CFF). The authors would like to thank the CFF team and in particular, Max Lohmann, Antonia Mathes, Aris Moro, Vera Otterstein, Lukas Prinz, and Oliver Walker for their input and feedback. The interviews were conducted by Anna Maria Link and Martin Hueber. The magazine was designed by undstoffers Designbüro.

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C40 Cities Climate Leadership Group
3 Queen Victoria Street, City
London EC4N 4TQ
United Kingdom

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Potsdamer Platz 10
10785 Berlin
Germany

E contact@c40cff.org
W c40cff.org

Funding partners:

Federal Ministry for Economic Cooperation and Development

Funded by UK Government

USAID FROM THE AMERICAN PEOPLE

Implementing agencies:

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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