

CITIES, AT THE FOREFRONT OF SUSTAINABLE TRANSFORMATION

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Solar panels on the roof of City Hall, Curitiba.
Picture credits: Pedro Ribas/SMCS.

Before serving as Deputy Regional Director for Latin America, Ilan Cuperstein has worked as C40 city adviser to Rio de Janeiro, helping the city implement its climate action plan in multiple areas and setting the first sustainability office in Latin America. As Deputy Regional Director for Latin America, Ilan has successfully launched the C40 clean energy network, which has now over 30 cities from various C40 regions. Ilan has previously worked at the China Brazil Center for Climate Change, where he worked with government agencies, energy companies and NGOs in bilateral projects related to biofuels, clean energy innovation policies, electric vehicles and carbon capture and storage in Rio de Janeiro and Beijing.

Cities have a crucial role regarding climate action: most greenhouse gas emissions occur in cities, while they also appear as one of the most active stakeholders leading sustainable and lasting transformation, as advocated by C40. Latin American cities, often depicted as “urban laboratories”, illustrate this complex reality. In the absence of national leadership, Brazilian cities for instance, have been taking the lead and implementing sustainable innovative solutions, on many different areas: transport, renewable energies, urban planning... The region also demonstrates how social aspects can be fully integrated in climate solutions: a prerequisite given Latin America persisting inequalities. In this regard, innovative public-private business models emerge as well, to build economically viable sustainable solutions, without increasing costs for lower income users.





Cities play a paradoxical role regarding the fight against climate change. Often depicted, rightfully, as one of the main sources of greenhouse gas emissions, they also appear as one of the most efficient stakeholders to initiate real transformations towards sustainability. What can we really expect from cities?

Ilan Cuperstein: This paradoxical observation is shared by C40. Cities' responsibility regarding climate warming is no secret: according to UN Habitat, cities consume 78% of the world's energy and produce more than 60% of greenhouse gas emissions. However, we strongly believe that sustainable solutions will come out from cities. Given that more than half of the world population is urban, reinventing the way we live in cities is a prerequisite to tackle climate change.

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To this end, two different dimensions should be highlighted.

On the one hand, we need to rethink how we build and manage our cities, regarding transport, infrastructure, waste treatment, housing... Adaptation strategies are required for all of these issues. Fortunately, numerous solutions already exist, such as promoting mass transit (train, subways) or walking and cycling instead of individual cars, using clean energy or increasing green and blue infrastructure.

On the other hand, it is crucial to reduce cities' consumption patterns. This second aspect is sometimes underestimated; yet some very "green" cities might prove to be unsustainable if we measure the emissions footprint associated to their food or resources' consumptions.

Those two aspects should be equally prioritized.

Expectations towards cities are great because they are the ones leading the fight against climate change, filling the gap left in the absence of more committed leadership at national levels. Of course, inherent geographical and political boundaries prevent cities from acting alone, and coordination with regional or national actors is vital to lift some barriers, such as lack of funding or limited mandate regarding some specific issues. But there are cities today trying to find innovative solutions in the realm of actions they have.

In Brazil, cities like Rio de Janeiro and Salvador have been taking concrete steps to foster renewable energies. Even though they are not responsible for energy policies, they decided to take proactive actions by building solar plants within the cities and introducing innovative tax incentives to promote solar energy. In Brazil, Rio de Janeiro and Curitiba have started to build solar plants on retired landfills, with the support of the C40 Finances Facility. They decided to rely on their own solar energy resources, by leveraging apparently useless assets – deactivated landfills, traditionally viewed as a burden for cities given



their environmental liabilities –, with the ultimate goal of providing most of the energy consumption of municipal buildings and operations. Those are unprecedented experiments, which could inspire many other cities in the region. In Salvador, the Renewable Energy Incentives Law provides incentives and discounts on land tax for those citizens that install solar panels in their homes.

Environmental and social issues are sometimes perceived as conflicting objectives. In Europe, this antagonism is encompassed through the expression “End of the month vs. End of the world”. How does this issue resonate in Latin America, both one of the most urbanized and unequal regions on the planet? How is it possible to build sustainable models without increasing social inequalities, even more so in the aftermath of the pandemic?

I. C.: In Latin America, focusing on the social aspects of climate solutions is core. There are so many remaining challenges to guarantee access to basic services and basic quality of life to everyone that starting a discussion about climate action without raising its social outcomes is barely conceivable. This context often proves to be an opportunity rather than a burden, as it goes beyond the kind of antagonism perceived in Europe.

Sustainable development of urban projects is rather seen as a lever to include marginalized population or neighborhoods. For instance, studies show that mass transit, which is the main means of transport in Latin America, is more frequently used by low-income population, living far from city centers. Building on this observation, when looking to boost the transition towards electric buses, cities in Latin America seldom consider the option of increasing users' tariffs.

Of course, social and environmental dimensions are not always easy to conciliate. In Mexico, the fossil fuel industry, accounting for more than 2% of GDP, generates a great amount of taxes and jobs. How can we make sure to transition towards a low-carbon economy without undermining national economies and increasing unemployment?

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Those kinds of dilemmas are analyzed in depth by the C40. In a recent report,¹ the C40 Mayors Task Force modelled what could happen if the world's major cities collectively prioritized a green and just recovery, consistent with limiting global heating to less than 1,5°C. One of the main findings of this work is that a green and just recovery could create over 50 million good, sustainable jobs by 2025 across the nearly 100 cities in the C40 network (which count around 550 million inhabitants),² and their supply chains, a third more than when investing equivalent funds into a high-carbon recovery.

Several key areas should be considered to implement such a green recovery approach, including:

- **Public mass transit:** while people are going back to their normal life, it is key to guarantee that public transport is clean and reliable, while providing alternatives to individual cars use. Additionally, studies from the C40 find that proper investment in public transport could create 4.6 million additional jobs by 2030 across the 97 cities in the C40 network.³
- **Renewable energy:** studies show that clean energy generates almost twice as much jobs as fossil fuels (for \$1 invested), as it is more distributed (in particular, solar energy has a jobs multiplier of 12.2).⁴
- **Energy efficiency:** residential and office building retrofits and new energy-efficiency construction are by far the biggest job-creating actions identified by the C40. According to the International Energy Agency (IEA)'s estimations, average global jobs multiplier is 14.8 for building retrofits and 15.2 for the construction of new, efficient buildings.
- **Green infrastructure:** investing in green and blue infrastructure (trees, parks, rivers, wetlands, water treatment facilities, etc.) is also likely to generate long-term jobs in operations and management. It is however hard to identify a global average jobs multiplier for urban nature-based solutions.
- **Waste management:** in Latin America, where numerous cities still rely on informal waste pickers, improving waste management can be a tool to improve informal workers' status and inclusion. In Sao Paulo, the municipality endorsed a program including informal waste pickers in the city management, thus helping them move towards more formality and less uncertainty in their daily lives (registration, regular flow of income, etc.). This proved to be a huge step for them.

1 C40 Cities Climate Leadership Group, *Technical report: The case for a green and just recovery*, April 2021.

2 Oxford Economics (2020 data).

3 C40, *The Future of Public Transport: Investing in a frontline service for frontline workers*, March 2021.

4 *Ibid.*



Total number of jobs associated with capital expenditure under the Standard, Accelerated and Slow Green Recovery scenarios



An Accelerated Recovery will generate a higher number of total jobs, as large capital investments are made over a shorter period. For example, if 10 houses are built in one year and each house generates one construction job for a full year, then building 10 houses will generate 10 construction jobs that year. If the same 10 houses are built over 10 years, the pace of construction will only generate one construction job per year. The first scenario would see 10 people working for one year, the second, one person working for 10 years.

Source: C40, *Technical report: The case for a green and just recovery*, 2020.

Figure 1

Job years created under a Standard Green Recovery scenario, by sector, 2020-2030



Source: C40, *Technical report: The case for a green and just recovery*, 2020.

Figure 2





Public transport station in one of the busiest avenues of the city. Bogotá. Colombia

Latin American cities are often described as “urban laboratories”. What are the most innovative sustainable models being implemented successfully in the region?

I. C.: Many interesting and innovating cases can be pointed out in the region, highlighting Latin American cities’ pioneering role in sustainable transition.

Public transport. Latin American cities have been leaders in the implementation of bus rapid transit (BRT) systems – high-quality bus-based transit system delivering fast, comfortable, and cost-effective services at metro-level capacities –, born in Brazil in early 1970s. Bogota’s famous *TransMilenio* BRT system, ongoing since 2000, now covers more than 200km in the city. Moving further, many cities in countries such as Chile and Colombia are increasingly replacing fossil-fuel powered buses with battery-powered vehicles, to the point that Latin America currently has the largest fleet of electric buses outside of China. Many municipalities like Santiago, Bogota or Sao Paulo are committing to convert their bus fleet to zero emission technologies in the upcoming years: Santiago is the leader with over 700 e-buses operating under private contracts.

Some innovative initiatives also emerged during the pandemic, such as temporary bike lanes, launched in Bogota, Mexico City or Buenos Aires, and should be made permanent in many areas. Bogota, which started the pandemic with 117 kilometers of temporary bike lanes,

is currently in the process of making permanent at least 21 kilometers, thus expanding its total network of bicycle lanes to 572 kilometers.

New urban planning models. More and more cities are also reinventing the way inhabitants move, shop or work on a daily basis. The 15-minute city, a residential urban concept coined by the French-Colombian urbanist Carlos Moreno, in which all city residents are able to meet most of their needs within a short walk or bicycle ride from their homes, is gaining popularity, even more so in the aftermath of the pandemic. In Latin America, where cities are usually more extended than in Europe, this concept has been adapted towards a “30-minute city”. In Buenos Aires, current initiatives aim at better connecting pedestrian streets to mass transit systems.

If we look at the bigger picture, Latin American cities are also at the forefront of adaptation strategies. We recently finalized C40 Climate Action Planning program, an ambitious two-year initiative which helped cities part of our network in Latin America (Buenos Aires, Curitiba, Guadalajara, Lima, Medellin, Mexico City, Quito, Rio de Janeiro, Salvador, Sao Paulo) to draft climate action plans aligned with the Paris Agreement. These plans also included climate risk assessments, identifying the most serious climate impacts and the areas within cities they were likely to occur. These assessments are a powerful tool to plan for heat mitigation strategies, expansion of green coverage, sustainable drainage systems and integrated urban planning.



Which lessons can be drawn from the Latin American model when it comes to providing long term and economically viable sustainable solutions, considering cities' constrained budget and necessity to avoid increasing users' tariffs?

I. C.: This is a complex equation to solve. To illustrate this point, let me come back to the zero-emission transit solutions, which are a major lever to reduce cities' greenhouse gas emissions and air pollution. An increasing number of cities in Latin America push ahead plans to convert bus fleets to zero emission technologies, most notably battery electric buses (e-buses). To understand the backdrop for converting bus fleet to electricity, C40 recently published a report reviewing innovative business models currently used for municipal buses in Latin America.⁵ This element is crucial. Like most battery-powered vehicles, the capital costs of e-buses tend to be higher and the operational costs tend to be lower than fossil fuel alternatives. For that reason, new business models and creative financial solutions have been at the heart of the conversation on e-buses, with public and private stakeholders working to develop alternative models to help municipalities overcome the high up-front cost premium associated with e-buses while taking advantage of the significantly lower operational costs.

In Latin America, several municipalities have chosen innovative public-private partnership and concession-based models for integrating e-buses into their systems. One of the key advantages of this model is to offer a better risk allocation amongst stakeholders, by involving third-party asset managers (fleet providers). Under this model of fleet leasing, the fleet providers finance, procure, own, and/or maintain the equipment, and provide e-bus fleets to operators and municipalities under stable long-term contracts. In e-buses, leasing can eliminate the need for large up-front capital expenditure by municipalities or operators. In emerging markets, where public resources are often scarce, those models are even more relevant. Cities like Santiago and Bogota are increasingly switching to these options.

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What will be required in the upcoming years to support cities in their transition towards sustainable models?

I. C.: Financial constraints are usually the first barrier to implementing sustainable and innovation solutions, even more so in emerging countries. In many countries in Latin America, cities' budget are largely incompatible with the responsibilities they have. Most of municipalities' allocation is spent on basic services, which does not leave much room for climate action. Making mechanisms like the Green Climate Fund accessible to cities would be a very efficient way to start lifting this structural barrier.

Another issue derives from governance. Climate change challenges the way cities are used to work. It requires a transversal approach and effort. Climate action is still considered to be a responsibility of the cities' environmental departments most of the time, while it should include roughly any topic, from education to transport, health and waste management. In this respect, some interesting initiatives are starting to emerge. Sao Paulo recently appointed an Executive secretary for Climate Change, who responds directly to the Secretary of Government, signaling a more encompassing and articulated implementation and monitoring of the city's climate action plan.

The ongoing social and economic crisis and the fight against the pandemic also tend to slow down the climate action agenda. Municipalities dedicate their resources to providing basic services, while facing more financial constraints (less revenues and more short-term expenses to allocate). This context poses a great challenge to mid and long-term investments.

Those are macroeconomic trends which are unevenly distributed among cities, depending on their size, location, resources... Large and medium cities face different obstacles and can build on contrasting assets as well. Small and medium cities, which are still growing, can learn from the flaws and successes of larger cities, and anticipate the challenges which derive from rapid urban growth (traffic jams, informal housing, etc.). They have an opportunity to benefit from the so-called "leapfrog effect". However, in many cases, smaller cities also suffer from a lack of human, financial and technical resources to innovate. To overcome those constraints, cities can organize as consortiums, to invest in bigger projects, with the support of national bodies, while relying on national and international funding as well.

⁵ Accelerating a market transition in Latin America: New business models for electric bus deployment (February 2020). See also: Leading clean recovery with electric buses. Innovative business models promise in Latin America (November 2020).

