

BETTER CITIES, BETTER PLANET: EXAMPLES OF GOVERNING AGAINST CLIMATE CHANGE FROM OECD COUNTRIES

Lamia Kamal-Chaoui¹ Margo Cointreau²

The motto for the 2010 World Expo in Shanghai, China captures the important role being attributed to the urban dimension of contemporary societies: “Better City, Better Life”. While one could argue that the slogan oversimplifies reality, it does allude to the scale and importance of urbanisation across the globe: Today, approximately half of the world’s population lives in cities; by 2050, the figure will probably be two-thirds. As key engines of the global economy, cities are responsible for the bulk of national output, innovation and employment, and they are strategic gateways of transnational capital flows and global supply chains (OECD, 2006). It is not surprising that cities consume a preponderance – between 60 to 80% – of energy production worldwide and account for a roughly equal share of global greenhouse emissions. All projections indicate that this trend will continue as urban populations grow.

¹ Lamia Kamal-Chaoui , Head of the Urban Development Programme, OECD.

² Margo Cointreau, Consultant, Urban Development Unit, OECD.

The World Expo slogan could also be adapted to describe the proactive role of cities in action against climate change and facilitating the world's transition towards a greener economy: "Better Cities, Better Planet". How cities grow in the coming decades - their activities and their urban form – will have a considerable impact both environmental quality and national competitiveness. By 2030, according to the International Energy Agency (OECD/IEA, 2008), cities will account for 87% of the energy consumption in the United States, up from 80% in 2006. Within the European Union, projections suggest that urban energy consumption will rise from 69% to 75%, and in Australia and New Zealand, from 78 to 80%. However, the largest increase in energy use is expected in cities in emerging and developing countries in Africa and Asia, which, according to United Nations projections, will experience the fastest urban growth. In those countries, the preponderance of urban energy use is likely to shift from a CO₂-neutral energy source (biomass and waste) to CO₂-intensive energy sources, producing a significant impact on CO₂ emissions. In China, cities already account for 75% of the country's energy consumption (a figure that is projected to reach 83% by 2030), and the World Bank reports that all 30 of the 30 most polluted cities in the world are located in China (Dollar, 2008). Urban form matter as well: lower urban density is linked to higher energy consumption for electricity and transport (Kamal-Chaoui and Robert, 2009). Sustainable urban form and development is essential to tackling climate change.

Cities also pose clear economic advantages for the pursuit of a green growth strategy. Cities are the drivers of national GDP and main centres of innovation, and

typically feature higher level of productivity than their country's average due to specialization in higher value added activities (OECD, 2006). It is only natural that eco-innovation converges in cities. Cities, by concentrating skills and firms, allow agglomeration economies to develop, thanks to effective urban infrastructure, knowledge spillovers, labour market pooling and input sharing, as well as demand and cost linkages. However, urban sprawl reduces the likelihood that such agglomeration economies will emerge, increases traffic and pollution and CO₂ emissions and also undercuts the economic and social viability of the large infrastructural investments that are needed to tackle the twin challenges of climate change and urbanisation. In many OECD countries, urbanisation and suburbanisation went hand in hand with urban sprawl, generating greater capital costs related to building more schools and extending roads, water and sewer lines and storm water drainage systems. Sprawling cities tend to be characterised by low economic efficiency and high environmental stress. Sprawl affects the efficiency of household transport patterns and tends to increase daily vehicle miles travelled per capita which leads to greater air pollution/ozone levels. The most complete empirical work on sprawl in the US "The Cost of Sprawl -2000" found that sprawl would result in USD 227 billion in additional costs in the U.S. over a 25-year period (Burchell *et al.*, in OECD/CDRF, 2010). In China, sprawling associated with the rapid expansion of the major metropolitan regions has become also a serious issue (Kamal-Chaoui *et al.* 2009). This is occurring not only in the major coastal metropolitan regions, such as Shanghai and Guangzhou, but also inland in smaller regions such as Chengdu. For example,

time-series analysis of satellite imagery shows that built-up land areas in large parts of suburban Chengdu grew by 300% in a six-year period (1996-2002) and built-up parts of large areas of suburban Shanghai expanded by 350% from 1988 to 2002 (Kamal-Chaoui *et al*, 2009). In the Guangdong province, from 1990 to 2000, built-up land area in the Inner PRD grew by over 300% in a pattern of sprawl that was hitherto unknown in China (OECD, 2010b).

Why do urban policies offer the potential to create synergies among environmental and economic priorities? In addition to the agglomeration economies described above, implementing policies for green growth allow governments to benefit from the complementarities between these traditionally antagonistic objectives and the effects of stronger synergies. For example, OECD analysis demonstrated that urban policy can contribute to national CO₂ emissions reduction targets. Findings from a general equilibrium model (CGE model) with an urban module demonstrate that urban policies such as increases in spatial density and congestion charges can lead to a reduction of total OECD global energy demand and, consequently, of CO₂ emissions. Interestingly, overall abatement costs of meeting Kyoto emissions reduction objectives, generally observed at the macroeconomic level, can be reduced over time by complementing a global climate policy (*e.g.*, a carbon tax) with urban densification policies and congestion charges (Kamal-Chaoui and Robert, 2009). Imposing a densification policies or a congestion charge can have long term positive effects on the economy due to technological innovation (*e.g.* more efficient public

transport that responds to economic needs, better connects labour with employment and thus increase firms productivity).

National governments must understand that there is a clear economic advantage for meeting their emissions targets and pursuing green growth strategies through urban policies. The short term costs of urban environmental policies are lower than at the national level. An often cited example is local pollution, which increasingly impacts city attractiveness and competitiveness, especially in economies that are higher up the value chain. Results from the CGE model show, for instance, that if cities continue their current GHG emissions and lifestyles trends, by 2030 cities that could become more attractive will do so while also curbing local pollution (*e.g.* Ankara, Auckland, Barcelona, Krakow, Lille, Melbourne, Montreal, Monterrey, and Toronto). It also highlights that some metro-regions risk losing attractiveness if their current pollution trends continue (*e.g.* Chicago, Los Angeles, New York, Osaka, Paris, Philadelphia, Seoul and Tokyo) (Kamal-Chaoui and Robert, 2009).

Some urban climate policies can also provide additional co-benefits – beyond reduced GHG emissions and improved economic development. These include public health improvements, cost savings and increased efficiency, energy security and infrastructure improvements, and improved urban quality of life. These additional non-climate benefits may also help to explain the lower tradeoffs between economic growth and GHG emissions reduction at the metropolitan level. For example, GHG emissions reductions may benefit human health to such a degree as to offset a large part of the local costs of emissions reductions. Policies to reduce GHG emissions

through increasing energy efficiency can result in significant reductions in energy costs, and the energy savings achieved can compensate for the initial investment costs in as little as a few years.

The myriad benefits of pursuing green growth at the local level can be observed in Kitakyushu, Japan where city government, under the leadership of Mayor Kenji Kitahashi has helped local industries invest in innovation and technology to reduce energy dependency and pollution with its Eco-Town Plan. During the rapid economic progress of the 1960s, Kitakyushu developed into one of the four largest industrial zones in Japan, with an economy based on heavy industry (steel, cement and chemical production). Environmental pollution, however, was so severe that the local Dokai Bay became known as the “Sea of Death”. By implementing environmental policies, Kitakyushu managed to reduce its CO₂ emissions by more than 3% in the period from 1990 to 2002, while the overall rate for Japan registered an increase of more than 11%. The plan includes specific projects for recycling electric appliances, automobiles, plastic bottles and other recyclable wastes; advanced research on waste disposal and recycling technologies; and generating new industries from recycling resources and energy as city-wide activities. The opening of the special zone for recycling industries in the eco-town led to the creation of 1 000 direct jobs. Having transformed itself from a “gray” polluted city to a progressive “green” one, Kitakyushu was commended by the central government in 2008 as “the environmental model City of Japan” (OECD, 2008).

Cities can also make the link between economic development and climate change mitigation link by focusing on making existing and new buildings more energy efficient. In U.S. cities, and to a certain extent, in European ones, buildings consume 70% of electric power, 39% of all power consumed, and create 39% of CO₂ emissions. A group of pioneering cities have capitalised on a “first-mover” advantage and witnessed the growth of renewable energy industries and employment. Freiburg, for instance, developed a citywide strategy as early as 1986 with environmental guidelines that served as a basis for its economic specialisation in the solar energy industry. This included such policy measures as building city-owned solar projects; instituting a local ordinance requiring that 10% of the city’s electricity be obtained from renewable sources by 2010; creating public subsidies; and pro-active research and economic development support. These efforts have led to the creation of about 10 000 jobs in the environmental and solar sectors. Philadelphia turned to the green economy as part of a strategy to revitalise its manufacturing basis and promote job creation. Using a mix of public policy tools, including grants to companies that invest in renewable industries, energy-saving production processes and alternative energy production, and renewable portfolio standards, the city has attracted major players in the wind-power industry, such as Iberdrola in Spain and the German solar conglomerate Conergy. Investment in energy efficiency can also promote employment, creating jobs in retrofitting and stimulating demand for new energy-saving and pollution-fighting products (Joan Fitzgerald in OECD, 2008).

Another success story is Toronto, Canada's largest city, whose mayor, David Miller, has argued that what is good for the environment is also good for the economy. Toronto has one of the smallest ecological footprints of large North American cities and better air quality than OECD cities of a similar size (OECD, 2010a). The city has achieved 40% reductions in greenhouse gas emissions by capturing methane from its landfill and using it to generate electricity. Its Better Buildings Partnership programme uses green building standards and a green fleet with plug-in hybrid cars and offers small loans for new creative ideas in this field. After the city took the initial step of instituting mortgages that encouraged green building, the market responded positively by creating its own instruments. It is now routine for builders in Toronto to observe the highest environmental standards, Mayor Miller noted, although making national building codes more stringent would speed the process. A major part of Toronto's efforts have been energy retrofits on its 2000 concrete-slab apartment towers constructed during the 1960s and the 1970s. The mayor's Tower Renewal Project has lowered total energy expenditure by 5%, created better living conditions in socially disadvantaged neighbourhoods and generated new jobs in a new building retrofit industry. The demonstration effect of this strategy should create jobs and investment opportunities.

Stuttgart's leadership in environmental matters has been an excellent marketing tool for the city, thereby demonstrating how green growth can contribute to attractiveness. With 600 000 inhabitants (and around one million for the metropolitan area), Stuttgart is a world capital of the automotive industry, the city of Mercedes,

BMW and Porsche. Although manufacturing jobs have been disappearing, climate change has also affected the city in its core business, and the city government is now fully aware of the importance of coupling the imperatives of the car industry with the protection of the environment – that is, in making Stuttgart’s growth greener. Fostering a new culture of city development and housing, Stuttgart has reclaimed brownfields and recycled land to create communities that combine housing and employment, creating more sustainable communities. Working with the private sector, the city is now developing buses and cars that use new battery technologies with zero emissions and that need almost no fuel. The goal is to work with construction materials that are virtually 100% recyclable, Schuster said. The city has also launched many other interesting initiatives, including the establishment of a car-pool system, “Pendlernetz Stuttgart”, generally recognised as the most innovative in Europe. It has also instituted green roofs in both municipal buildings and private houses, and realised further energy savings in public buildings. The city was awarded a Climate Star in 2004 by the Climate Alliance.³

These examples illustrate how cities’ and regions’ climate goals are increasingly aligned with their economic objectives. Efficiency, competitiveness and attractiveness concerns are coalescing in cities to make action against climate change a driver of

3. European Climate Star Award is a biannual award for showcasing its members’ achievements. Stuttgart was one of about 20 municipalities awarded the Climate Star Award in 2004. Climate Alliance is an association of municipalities, regional governments, and NGOs, aiming for a reduction of greenhouse gas emissions. Since the foundation of the association in 1990, 1 400 cities, municipalities and districts have joined the association. More than 50 provinces, NGOs and further organisations have also joined as associate members.

urban economic growth. This is partly because the pressure on local governments to “do more with less” results from both economic and environmental concerns. For instance, local governments are being strained by the “scissors effect” associated with the financial crisis, which is expected to intensify as cities’ budgets decrease (*e.g.* from smaller tax revenue) while costs increase (*e.g.* from social welfare programs). This results in a heightened awareness of the need to be more efficient in governance, resource use, energy consumption and public services provision. Furthermore, in a globalised world, climate change initiatives are also a means to increase attractiveness: a reputation for being “green” can make cities popular destinations for investment and high-skilled labour (OECD, 2006). This phenomenon has been described as a “Race to the Top”⁴ in which cities and regions compete to develop the most sustainable policies. As cities have already shown, successful policies can lead to job creation, increased competitiveness and attractiveness. Increased national support and guidance could improve returns on public investment and comparisons of policy options. In return, cities can serve as policy laboratories for testing and perfecting green growth

4. For example, in *Race to the Top: The Expanding Role of U.S. State Renewable Portfolio Standards*, (2006, Pew Center on Global Climate Change, Arlington), Barry Rabe examines the proliferation of Renewable Portfolio Standards (RPSs) in American states. This policy tool establishes targets for growing the proportion of the local electricity supply that comes from renewable sources. He argues that “States are compelled to enact or expand RPSs for multiple reasons, and greenhouse gas emissions may or may not be central factors in prompting adoption. Instead, states consistently anticipate significant economic development benefits from promoting renewables, particularly given the promise of developing home-grown energy sources that could lead to in-state job creation. In turn, states are also attracted to RPSs by the prospect of greater reliability of electricity supply in coming decades and the prospect of reducing conventional air pollutants through a shift toward expanded use of renewables.”

strategies. Governments can and should enable a global ‘race to the top’ to prevent the worst effects of climate change while fostering a sustainable economic recovery.

Like any competition, a ‘race to the top’ will require clear rules and objectives. In other words, creating the conditions within which cities can unleash their green growth potential will depend on national and local governments’ ability to work together to adapt institutions and modes of governance (OECD, 2009b). In order to optimize urban policy’s contribution to competitiveness and combating climate change, local governments need to make use of all regulatory modes of urban governance. One can identify four modes of urban governance for implementing climate change policies (Alber and Kern in Corfee-Morlot *et al.*, 2009). The first, “*self-governing: the municipality as consumer*”, relates to the capacity of local governments to govern their own activities, for example, to promote the energy efficiency of municipal buildings and the greening of public transport vehicles. This is the most widespread form of local action, driven in many cases by the financial benefits of energy savings. The city of Los Angeles presents an interesting case study. In 2008, after meeting its Kyoto targets of generating 10% of its energy from renewable sources, Mayor Villaraigosa announced that the city would raise the target to 20%, outstripping the Kyoto objectives and those set by the state of California.⁵ These targets have been met so rapidly because the city controls a unique set of municipal assets, such as the Port of Los Angeles and the Department of Water and Power, which is the largest public utility in the United States (OECD, 2008).

5. Financial Times, Tuesday, 28 October 2008.

A second mode of urban governance, “*governing through enabling: the municipality as facilitator*”, refers to the different forms of co-ordination with private and community actors, such as the establishment of public-private partnerships for the provision of services and infrastructure. For example, the municipal energy plan of the City Council of Venice includes a series of intention protocols involving a number of joint venture projects between private companies, municipal transport companies, housing administrators’ associations and associations of planners, architects and engineers. Under a third mode of urban governance, “*the municipality as provider*”, the municipality can have a significant impact on local climate change action as the majority shareholder in the local utility companies for energy, transport, water and waste services. In many countries, local governments can resort to “*governing by authority: the municipality as regulator*”, the fourth mode of urban governance, when they have the legal power in such important areas of planning responsibilities for energy, transport and land use. Examples include Barcelona’s solar thermal ordinance; the introduction of regulations to reduce the fossil fuel standard for all new buildings in Santa Barbara, and restrictions on the use of cars in Munich and Paris. The extent of such a mode of authoritative governance, on a voluntary basis, remains limited. To maximise the impact of policies, it is crucial that local governments simultaneously employ multiple modes of governance.

National government engagement is another crucial element in fostering green growth in cities. For the moment, the state of vertical intergovernmental co-operation in climate-change mitigation and adaptation still appears *ad hoc* and subject to rapid

evolution. The role of cities and the interactions between cities and national response policies is still largely unexplored, though some for effective and efficient responses to climate change can be cited. For example, Germany's 1997 guidelines for local climate protection (*Leitfaden Kommunalen Klimaschutz*) and the involvement of the United States National Oceanic and Atmospheric Administration in drafting environmental recommendations for the Seattle metropolitan region (Kern and Alber in OECD, 2008). Second, national governments can also be *providers*, by offering additional funding for local projects related to climate change, such as the Swedish Climate Investment Programme (KLIMP), which mainly funds municipal energy efficiency and transit projects. Even more importantly, national governments can serve as *watchdogs*, by establishing legal frameworks for local climate change action or creating national air and water quality standards, for example. But here again, success seems predicated on local planning capacity and budgetary resources. In the field of adaptation, national governments can facilitate timely and cost-effective action at the city scale, by providing mandates and incentives at the local level, financing regional climate scenarios and impact analysis to support decision-making, and raising awareness of businesses to integrate climate risks into business decisions. Regardless of the choice of models or the combination thereof, robust accountability standards will have to accompany these arrangements for public reporting. For the moment, bureaucratic processes are too unwieldy. Cities' initiatives would benefit from more co-ordinated and structured support from national governments.

As the global economic recovery begins to take shape, the green economy offers the opportunity to help cities and their inhabitants recover, which will, in turn, solidify the national economy. At this crucial stage, it is important to think in terms of synergies and opportunities outside the usual multiple-choice box of threats and priorities. Cities around the world have demonstrated that climate change is not so much a threat to be feared, but a challenge to be met. By pursuing green growth strategies, cities can generate opportunities to develop and sell the technologies that will be in demand in the markets of tomorrow. The underlying drivers such as drought, rising sea levels and increasingly extreme weather events, could fuel a new market demanding new services and products in areas such as energy efficiency, water infrastructure, modified crops, flood defences, new housing and commercial buildings. Climate change and related water challenges could become a catalyst that will anchor the runaway financial system to the basic and long-term needs of the real economy. Investment in renewable energy technologies and in the renovation of infrastructure vulnerable to climate change could serve as the backbone to a New Deal for public investment in cities. As currently being developed in many OECD countries, a green growth strategy for cities in China could be an efficient tool to reach the objectives of upgrading the economy whilst addressing equity and environmental quality. Attracting green industries, investing in green infrastructure and renewable technologies, and improving the eco-efficiency of existing industries and buildings could create a significant number of jobs in many cities and at the same time strengthen regional and national competitiveness.

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