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ARTICLE

How do Local Governments in Mexico City Manage Global Warming?

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ABSTRACT Cities are both significant emitters of carbon dioxide and centres of innovations that may contribute to de-carbonizing our societies. More voices claim therefore that local authorities should be included in efforts to mitigate climate change. However, few studies have analysed how local authorities manage carbon and climate in urban areas in middle- and low-income countries. Yet, the institutional settings and governance structures of such cities are different from those prevailing in cities of wealthy countries. This paper aims to fill this gap by exploring: (a) whether and—if so—how local authorities in Mexico City actually ‘manage’ carbon emissions; (b) how the city’s evolving governance structures function and whether they ‘fit’ with the problem they address; and (c) how institutional capacity constrains authorities’ management efforts. The paper suggests that policy networks and research groups have been critical in launching a climate agenda. Nevertheless, this has not been enough to push effective policies. Policymaking has been constrained by two sets of institutional factors: the problem of fit and a lack of institutional capacity.

Introduction

Cities have a double and contradictory role within the carbon and climate change arena. On the one hand, urbanization has become a major global...
process with profound local, regional and global impacts on the way in which
energy and land are used (Steffen et al., 2004, Pataki et al., 2006). On the
other hand, cities are centres of diverse kinds of innovations that may contrib-
ute to de-carbonizing our societies and making them more sustainable
through such mechanisms as changes in transportation, the use of power in
cities’ buildings, and the production and consumption patterns of their resi-
dents (Hunt, 2004).

In this context more and more voices are claiming that local authorities
should be included in global efforts to curb greenhouse gas (GHG) emissions.
Yet, just as urban centres register different levels and paths of development,
cities do not contribute at the same level to global warming (Romero Lankao,
in press). Carbon emissions per person in cities in low- and middle-income
nations are very small compared with those of wealthy urban areas. For
example, the per capita emissions in Los Angeles average 15.6 tons of CO₂-
equivalent. These amounts are huge when compared to amounts in Mexico
City, where the per capita emissions are four times smaller (3.6 tons). If we
multiply the per capita numbers by the total population, then Los Angeles
and Mexico City emit 234 and 64.8 million tons per year, respectively
(Romero Lankao, in press). Curbing carbon emissions may therefore not
be the current ‘local environmental priority’. Rather, the local priority
may be vulnerability and adaptation to the impacts of climate change
(Intergovernmental Panel on Climate Change (IPCC), 2001). This in no
way means that urban areas in middle-income countries should assume a
passive attitude toward this global concern. On the contrary they need to
act; they can use climate change as a reason to promote sustainable patterns
of urbanization, which include energy-efficient production utilities, and make
consumer goods and services available for more people without jeopardizing
natural resources, ecosystems and people livelihoods at the national and
global levels.

Few studies exist on how local authorities in cities from high-income
nations manage climate change (e.g. Betsill, 2001; Bulkeley & Betsill,
2003); and even fewer on how authorities in middle- and low-
inecome countries manage their GHG emissions, although it is expected
that at least some of these countries (e.g. China and India) will increase
their carbon footprint (Romero Lankao, 2004). Given that the institutional
settings and governance structures of cities in middle- and low-income
countries are different from those prevailing in wealthy cities (Myllylä &
Kuvaaja, 2005; Lee, 2006), this is a significant omission. This paper aims
to fill this gap by exploring (a) whether and—if so—how local authorities
in Mexico City, an urban area in a middle-income nation, actually
‘manage’ carbon emissions; (b) how evolving government structures
function and whether they ‘fit’ or match with the socio-ecological
problem they intend to address; and (c) how institutional capacity
constrains management efforts by local authorities. The paper starts with a
short characterization of concepts relevant to the analysis of carbon
management, such as the problem of ‘fit’, institutional capacity and policy
networks.
Institutions as Learning Facilitators; Institutional Fit and Capacity

Institutions can facilitate learning (Young & Levy, 1999). Ideological factors and discourse may bring about policy change (Social Learning Group [SLG], 2001a). This has led some scholars to assume that knowledge will result in policy change (Keeley & Scoones, 1999). However, these studies mostly refer to high-income countries (SLG, 2001b; Bulkeley & Betsill, 2003). This paper explores: whether institutions in a city of a middle-income country can also facilitate learning; how factual information and prevailing discourses have evolved during last two decades; and whether epistemic communities (e.g. the research group led by Mario Molina), policy networks (e.g. ICLEI1) and individuals have also been key in launching a carbon agenda at the urban level during the last few years. Yet, knowledge does not necessarily result in management and action (Bulkeley & Betsill, 2003). Management is not only about framing an environmental problem; it also relates to what measures authorities design to actually deal with it in terms of one set of causes and effects instead of others. In short, it refers to something frequently neglected by scholars: whether policymakers can and want to go beyond declarations of goodwill by introducing actions such as allocating resources to undertake the declared measures.

In considering the possibilities of acting on climate change at the urban level, the policy effectiveness of individuals, policy networks and epistemic communities should not be overstated. Even in cases like Mexico City, in which those groups were instrumental in launching carbon-related programmes, these policies have been constrained by diverse institutional factors. The first relates to the problem of fit, according to which the effectiveness of institutions is a function of the match between the features of the institutions themselves and the relevant characteristics of the system they intend to influence (Young et al., 2005, p. 57). This paper will explore whether the administrative structure of governance of Mexico City fits its actual boundaries and carbon-relevant functions, defined economic interchanges, fluxes of materials and energy, and transportation between activities and households in the city’s core area and localities.

The second constraint is that of institutional capacity, defined as the ‘ability to perform functions, solve problems and set and achieve objectives’ (Willems, 2003, p. 5). Institutional capacity can be approached at three levels. The first, the individual, refers to whether there are sufficient and adequate personnel and measurement devices and a professional civil service. The second level relates to the management capacity of an organization, to whether it is provided with clear missions, appropriate resources and

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1ICLEI is the International Council for Local Environmental Initiatives. Local governments participating in ICLEI’s Cities for Climate Protection (CCP) Campaign commit to undertake and complete five performance milestones, namely, a) conduct an energy and emissions inventory and forecast, b) establish an emissions target, c) develop and obtain approval for the Local Action Plan, d) Implement policies and measures, and e) monitor and verify results. See ICLEI 2006: April 20 2006 www.icle.org.
decision-making power. The third one, the intergovernmental one, is associated with the ability to: (a) ensure participation of key actors; (b) provide stable rules and financial provisions to assure intergovernmental collaboration; and (c) allocate responsibilities and provide sufficient authority to coordinating organizations. The institutional capacity to deal with climate change mitigation and air quality is not an established fact but rather a changing process. Nevertheless in institutional studies the ‘point of reference of the analysis is the institution as it exists at a particular point in time’ (Underdal, 2006, p. 6). In this paper I intend to go beyond that perspective. Rather than analysing institutions as established orders, I will describe how Mexico City has been subjected to a contradictory process of centralized control by the federal government and institutional fragmentation. I will describe how government’s institutional capacity has been further constrained by such profound institutional changes as decentralization, downsizing and retrenchment of the state, liberalization and deregulation (Harris, 2000).

Management: From ‘Local’ to ‘Localizing’ Global Concerns

This section describes the city’s institutional and environmental context and explores whether and—if so—how the city’s authorities ‘manage’ carbon emissions.

Mexico City’s Institutional and Environmental Context

Air quality has historically been a critical issue in Mexico City (Molina et al., 2002, p. 5). Like GHG emissions, most air pollution comes from the combustion of fossil fuels (representing about 87% of final energy consumption) for heating and electricity generation, for running motor vehicles and in industrial processes. Transportation is both the main consumer of energy and the source of ‘criteria pollutants’ (CO, nitrogen dioxide [NO₂], Total Suspended Particles (TSP)) and GHGs (Molina et al., 2002, and Table 1); other sources are industrial activities and households using fuels in inefficient heaters and cookers. Wind-blown dust and carbon resulting from land use changes and aggravated by poor land management and many unpaved roads are also common sources of emissions (Ministry of Environment and Natural Resources (SEMARNAT) et al., 2003; SMA [Ministry of Environment of the Federal District], 2004).

However, managing air quality and climate change in Mexico City has been complicated because of the institutional structures of urban governance. Historically, the seat of the federal powers has been placed in the Federal District, where the most important economic hub of the country, Mexico City, is located. The city has constantly changed in space and over time; it was limited to the inner city or core area (four central delegated units within the Federal District [FD], the grey diamond in Figure 1) in the 1950s; in the 1980s it became the Mexico City Metropolitan Area (MCMMA) including the FD and 35 surrounding municipalities; and it is currently a megalopolis (see Figure 1).
The federal government has been historically reticent to reform such a unique entity. In the 1920s (Nava Escudero, 2001), the president became responsible for administrating the Federal District’s government and appointed a mayor and delegated mayors to assist him in carrying out his duties. While processes were established to expand the scope of citizen participation (e.g. consultative council, Representative Assembly of the Federal District), they only had an advisory function. The capital is currently managed by five governmental unities: the Federal District with its 16 delegations, the State of Mexico with 35 conurbanized municipalities, and the federal government, which still exerts a strong influence on Mexico City. Mexico City has therefore faced almost a century of contradictory processes of centralized control by the federal government while local institutional structures and political participation have been fragmented.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Tons</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>8,526,222</td>
<td>14.2</td>
</tr>
<tr>
<td>Industrial</td>
<td>17,181,000</td>
<td>28.6</td>
</tr>
<tr>
<td>Commercial</td>
<td>2,928,375</td>
<td>4.9</td>
</tr>
<tr>
<td>Transportation(^a)</td>
<td>20,860,291</td>
<td>34.7</td>
</tr>
<tr>
<td>Electricity generation</td>
<td>3,080,652</td>
<td>5.1</td>
</tr>
<tr>
<td>Solid wastes(^b)</td>
<td>6,446,797</td>
<td>10.7</td>
</tr>
<tr>
<td>Agricultural</td>
<td>183,155</td>
<td>0.3</td>
</tr>
<tr>
<td>Government(^a)</td>
<td>839,410</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>60,045,902</td>
<td>100.0</td>
</tr>
</tbody>
</table>

\(^a\)This differs from SMA (2004) in that, rather than including Metro and trolleybuses as governmental emitters, it includes both within the transportation sector.
\(^b\)This refers only to wastes generated in the FD.
Since the 1980s international organizations and programmes such as the World Bank and Agenda 21 have had a further influence on the governance structure of Mexico City. These bodies have recommended decentralization and devolution of responsibility for environmental management to local authorities (Wilder & Romero Lankao, 2006). This has exerted a profound influence on the reform of the city’s governance structure, which, rather than emphasizing coordination, efficiency and effectiveness of policy implementation and enforcement (Nava Escudero, 2001), has focused on democracy and political rights (e.g. the legislative body of the Federal District gained considerable legislative powers, and the federal government eased control on the administration of the Federal District’s government) and on economic issues, rather than on addressing the uncoordinated and fragmented government structure of Mexico City.

A key component of the economic reform, the reduction of budget deficits, included: (a) slashing public expenditures in carbon-relevant areas such as public transportation; and (b) much reduced budgets and staff for sectors such as environment, urban planning and transportation. As will be shown below, this has further constrained the authorities’ institutional capacity to undertake their many and growing functions, subunits and programmes. The reform did not change such features as centralization, fragmentation and complexity, which as will be seen in section 4.2 constrain authorities’ institutional capacity to effectively manage the environmental problems of the city at the metropolitan level (section 4.1).

Framing as a Learning Process

How do city’s authorities manage air pollution and GHG emissions? I applied a taxonomy framework based on SLG (2001a, b) to analyse the way in which those issues have been framed and addressed in terms of one set of causes instead of others in three programmes: the Comprehensive Program against Air Pollution (PICCA 1990–1994), Program to Improve Air Quality in the Valley of Mexico (PROAIRE I, 1995–2000) and PROAIRE II 2002–2010. The Local Strategy of Climate Action was not included in the analysis because it does not suggest any measure or action other than the ones proposed by PROAIRE II. To classify and characterize the content of governmental discourse and the actions undertaken (Tables 2 and 3) six facets of the overall issue were distinguished: (a) proximate causes or activities directly involved in carbon emissions (e.g. transportation), which are driven by a set of such (b) forces as technologies. (c) Flux of materials relates to the release of carbon. (d) Certain environmental properties, such as forests’ ability to capture carbon, are publicly valued as positive. (e) Exposure of people and things denotes discussions on how, when and where they use exposed to carbon-related stresses. And (f) consequences for people and things encompass impacts of GHG emissions in such areas as health.

Against this backdrop of a growing concern with issues of air quality and changing institutional context, three periods can be distinguished in the management of carbon dioxide emissions in Mexico City. It will be seen
that during the transition from the second to the third phase the framing was increasingly influenced by epistemic communities and policy networks.

In the first period, 1971–1982, air quality concerns were related to the health impacts of air pollution and initial actions (such as monitoring of carbon monoxide [CO] and hydrogen chloride [HC] by ostensibly polluting vehicles) for which federal health authorities were responsible.

The passage in 1982 of the Federal Law of Environmental Regulation inaugurated a second period of managing carbon dioxide, lasting till the end of the 1990s, in which two tiers of government were responsible: the Ministry of Environment and the governments of two state entities: the Federal District and the State of Mexico. During this period, most responsibilities and authority to regulate air quality lay with the federal government (Romero Lankao et al., 2005a). Although during this second period air quality remained the city’s key environmental issue, it was slowly related to broader dimensions, including climate change. This can be seen by comparing how the problem is perceived by the designers of the first two environmental programmes: PICCA, 1990–1994 and PROAIRE I, 1995–2000.

Rather than to a ‘simple cause–effect relation’, like the ones stated in prior programmes (e.g. burning resulting in air pollution), emissions of air pollutants were related in PICCA to diverse factors, for example fuel quality, the state of incineration equipment, technologies for emissions control, the state of land cover in surrounding rural areas, and thermal inversions characteristic of the Basin of Mexico (Departamento del Distrito Federal [DDF], 1990, pp. 6–7). PROAIRE I was the first to include more socioeconomic dimensions to explain air pollution. Authorities stated that emitting sectors are utilitarian beings generating both ‘positive’ and ‘negative’ externalities: commodities and pollution, respectively. Contamination is an externality because such activities effect without cost the load capacity of the atmosphere and the health of the population (DDF et al., 1996, pp. 71–72). Furthermore PROAIRE I recognized the linkages among air pollution, urbanization and transportation.

### Table 2. Emitters receiving government’s lip service and finance (%a)

<table>
<thead>
<tr>
<th>Programme</th>
<th>Targeted with</th>
<th>Energy</th>
<th>Industry</th>
<th>Services</th>
<th>Transport</th>
<th>LUC</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>PICCA</td>
<td>Lip service(^b)</td>
<td>39.0</td>
<td>12.2</td>
<td>2.4</td>
<td>22.0</td>
<td>4.9</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>Money(^c)</td>
<td>46.3</td>
<td>2.4</td>
<td>1.2</td>
<td>3.6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PROAIRE I</td>
<td>Lip service</td>
<td>14.1</td>
<td>18.5</td>
<td>2.2</td>
<td>29.3</td>
<td>13.1</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>Money</td>
<td>26.8</td>
<td>1.6</td>
<td>0</td>
<td>13.3</td>
<td>7.8</td>
<td>0</td>
</tr>
<tr>
<td>PROAIRE II</td>
<td>Lip service</td>
<td>7.9</td>
<td>15.7</td>
<td>4.5</td>
<td>22.7</td>
<td>7.8</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Money</td>
<td>32.6</td>
<td>3.7</td>
<td>0.1</td>
<td>29.0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

\(^a\) The totals do not add up to 100% because actions address more than one emitter and driver at the same time.
\(^b\) This refers to the number of actions found in each programme to which authorities pay lip service.
\(^c\) This relates to the money allocated in each programme to deal with emitting sectors. Sources: DDF (1990; 1996); SEMARNAT (2003).

LUC, Land use changes.
The beginning of the 21st century has witnessed a third period of carbon dioxide management, which has involved the consolidation of a more integrated framing of carbon emissions. PROAIRE II 2002–2010, the most important and encompassing programme of this era, includes more dimensions and levels (e.g. global) in the analysis. As with other local initiatives (e.g. Denver in Bulkeley & Betsill, 2003, pp. 122–136), the interest and knowledge of some research groups, networks and persons have been decisive in ‘localizing’ global climate change. Mario Molina’s scientific projects and ICLEI offer an example of an epistemic group. Molina started the Integrated Program on Urban, Regional and Global Air Pollution at Massachusetts Institute of Technology (MIT) in 1999, with the participation of scientists, specialists and policymakers. The goal was to provide ‘objective, balanced assessments of the causes and alternative cost-effective solutions to urban, regional and global air pollution problems’. The programme Cities for Climate Protection (CCP), a ‘transnational network’ promoted by ICLEI, seeks to support local governments to achieve improvements in global environmental conditions through such local actions as the Local Strategy of Climate Action of Mexico City (SMA, 2004).

Claudia Scheinbaum was involved as a scientist in the first efforts to introduce the climate change agenda (e.g. she participated in Molina’s group). When she became minister of environment of the Federal District in 2000, she created an organization and launched such initiatives as the Local Strategy of Climate Action of Mexico City (SMA, 2004), sponsored by ICLEI; it included a GHG emissions inventory, scenarios and the identification of synergies between existing actions targeting air pollution and climate change.

All these efforts have resulted in some achievements. A group of academics and specialists from diverse sectors have constructed a shared view on air quality and the global implications of local actions; a learning process, hence, has occurred (SLG, 2001a). Molina’s effort made possible the impossible—at least within Mexico’s political culture—namely that representatives of very diverse sectors (federal, State and local governmental authorities, private sector and academia) sit together at the same table for six yearly workshops. City authorities have linked the control of GHG emissions, a global concern, to such issues as air quality already on the local agenda.

Yet the influence of these groups, individuals and networks should not be overestimated. Although these groups have been crucial in enhancing a learning process, they have not been able to push effective policy actions. Molina’s group and ICLEI tend to assume that increasing knowledge and ‘objective, and balanced assessments’ (Molina, 2005) will result in policy change. As in other cases (e.g. Denver in Bulkeley & Betsill, 2003), in Mexico City climate change has been discursively ‘localized’ in that it has been reframed in terms of air quality, an existing concern. But, as will be shown in the next section, the authorities’ concern has been backed up neither with the design of strategies and actions addressing all facets of the issue, nor with adequate funding.
From Integrated Framing to Narrow Real Actions

Analysis was undertaken to examine the issue domains in which the government pays ‘lip service’ to policy strategies and actions (Table 2) to which monies are allocated within the three main programmes to control air pollution: PICCA, PROAIRE I and PROAIRE II. Most policy actions focus on the proximate causes and drivers of emissions of carbon dioxide. Of all the emitting sectors, energy, transportation and industry received more attention with actions aimed at improving energy efficiency, fostering public transportation and restructuring and/or relocating industrial activities (Table 2). Another picture emerges if the focus is on actions receiving not only lip service, but also finance. The energy sectors represented by the state company Petroleos Mexicanos (PEMEX) gets the biggest share of finance, most of which is allocated to improve the quality of fuels. It is followed by transportation, targeted with such actions as ‘No Driving Day’ and the introduction of catalytic converters.

If the focus of classification is on government’s lip service to actions targeting the drivers of emitting activities then consideration was given to institutional settings, technological fixes and behaviour (Table 3). Measures included standards and technologies to improve energy efficiency, reduce emissions by automobiles (e.g. catalytic converters), monitor emissions and implement No Driving Day. A very different picture emerges again if the focus is on money actually allocated to target emissions drivers. Technological fixes received the highest percentage (see Table 3), with actions to improve the quality of gasoline, diesel and other fuels, introduce two-way and three-way catalytic converters for new gasoline vehicles and develop alternative fuels (liquefied petroleum gas [LPG] and compressed natural gas [CNG]) for vehicles. Unlike the integrated and broader framing of the carbon domain, policy strategies and actions hence have remained narrow and targeted a comparatively small proportion of both emitters and drivers included in the management taxonomy.

Table 3. Drivers receiving government's lip service and finance (%a)

<table>
<thead>
<tr>
<th>Programme</th>
<th>Targeted with</th>
<th>Behaviour</th>
<th>Institutional settings</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>PICCA</td>
<td>Lip service</td>
<td>22.0</td>
<td>17.1</td>
<td>43.9</td>
</tr>
<tr>
<td></td>
<td>Money</td>
<td>5.2</td>
<td>2.4</td>
<td>70.5</td>
</tr>
<tr>
<td>PROAIRE I</td>
<td>Lip service</td>
<td>1.1</td>
<td>67.4</td>
<td>6.5</td>
</tr>
<tr>
<td></td>
<td>Money</td>
<td>0</td>
<td>29.9</td>
<td>21.0</td>
</tr>
<tr>
<td>PROAIRE II</td>
<td>Lip service</td>
<td>6.7</td>
<td>50.6</td>
<td>8.9</td>
</tr>
<tr>
<td></td>
<td>Money</td>
<td>29.1</td>
<td>3.7</td>
<td>33.0</td>
</tr>
</tbody>
</table>

aThe totals do not add up to 100% because some actions address more than one driver and/or emitter at the same time.

bThis refers to the number of actions found in each programme to which authorities pay lip service.

cThis relates to the money allocated in each programme to deal with the drivers of emissions sectors.

Referred actions have resulted in some improvements, which cannot be traced with historical data on GHG emissions. To cover that gap, measurements of criteria pollutants, which can be traced for a longer period (1988–1999), can be taken as proxies for reductions in emissions of carbon dioxide. Both average and peak CO concentrations diminished (Instituto Nacional de Estadística Geografía Informática (INEGI), 2005, pp. 108–118), because now new cars must be equipped with catalytic converters and are subject to better inspection and maintenance practices. Air concentrations of sulphur dioxide (SO2) also decreased, as a consequence of reduced sulphur content in diesel and heavy oil and the closure of the oil refinery ‘18 de Marzo’. Although average levels of NO2 are below standards, peak concentrations have exceeded them on several occasions (INEGI, 2005, pp. 108–118).

Nevertheless, peak concentrations of ozone—a GHG—are three times above Mexican standards (Figure 2) and high in comparison with those of Los Angeles during the 1980s (Molina et al., 2002). Similarly, TSP levels exceed standards for both daily and annual average concentrations. Although average levels of NO2 are below standards, peak concentrations have exceeded them on several occasions (Figures 3 and 4). All this has negative implications for the health of the population (Molina et al., 2002).

Thus, notwithstanding some accomplishments and governmental commitment in carbon-related international programmes and protocols, the urban authorities still have an arduous way to go. Rather than pinpointing the amount of variance in emissions that can be attributed persuasively to institutional issues, the rest of this paper explores the institutional factors explaining the accomplishments, difficulties and challenges facing local authorities.

Institutional Constraints

Two institutional features constraining government’s ability to translate political will into policy action will be explored here: the fit between the organizational structure and some carbon-relevant features of the city’s boundaries and functioning; the authorities’ lack of institutional capacity.

Figure 2. Ozone concentrations in Mexico City. Sources: (2005); Molina et al. (2002); CAM et al. (1998).
The Problem of Fit

The administrative structure of city’s governance differs from its boundaries and carbon-relevant socioeconomic and ecological functioning. Administratively, the city is managed by diverse federal, state and local tiers of government. Yet, the city functions as a complex system; its core area and localities, activities and households are interlinked by economic interchanges and transportation activities, by fluxes of materials and energy. The city’s boundaries and functioning, and its government structure, hence, do not fit.

As mentioned above, the city’s reform did not change the uncoordinated and fragmented government structure of Mexico City. The capital is managed by five governmental unities: the Federal District with its 16 delegations, the State of Mexico with 35 conurbanized municipalities, and the federal government still exerting a strong influence on Mexico City.

To deal with the lack of coordination, authorities have created carbon-relevant coordinating commissions, viz. the Environmental Metropolitan Commission (CAM, 1992), Human Settlements Metropolitan Commission (COMETAH, 1995) and the Road and Transport Metropolitan Commission (COMETRAVI, 1994). The commissions function as a relatively lightweight institutional instruments mobilizing relevant stakeholders to focus on key issues (Organization for Economic Cooperation and Development [OECD], 2004, p. 71).

Nevertheless such efforts do not seem to have resulted in much coordination thus far. There is for every issue a remarkable number of plans designed by federal, state and local authorities without any coordination; each of which includes diverse timelines to implement their goals. For instance, eight programmes have been launched in recent years to deal with urban planning (a key determinant of land use changes) at the metro and state level; and 44 programmes have been initiated by municipalities and delegations. ‘This generates confusion in what their respective objectives should be and in how their actions should be implemented, coordinated and monitored’ (OECD, 2004, p. 75).

Institutional Capacity

Various factors defining institutional capacity may explain the lack of coordination. The first, related to the management capacity of an organization, is the difference between Mexico’s formally federal fiscal system and its real centralized structure. Local and state tax revenues ‘account for only 0.5% of GDP, whereas for other federal countries the figures range from 6.4% (Australia) up to 17.4% of GDP (Canada)’ (OECD, 2004, p. 78). This imposes constraints on local authorities’ institutional capacity to deal with climate change. The disparity between the fiscal capacity of the federal government and even the Federal District on the one hand and of the states and municipalities on the other is huge. The federal government gets the lion’s share of tax revenues (74.1%), the Federal District and delegations receive 12.9% and 9.1%, respectively, and such other entities as the States of...
Mexico and Hidalgo and the municipalities get only a tiny percentage (4.5%). The FD spends almost twice as much per capita as municipal plus state spending in the State of Mexico (OECD, 2004, pp. 79–84).

The second, related to the intergovernmental level of institutional capacity, refers to authorities’ lack of both a culture of cooperation and a common and broadly shared metropolitan vision. This may be due to the effects of both election laws and governing by diverse parties. Governors and the president are elected for a single six-year term; municipal presidents and delegados are limited to a single three-year period, which may be a factor preventing long-term accountability in policymaking. The three tiers of government are governed by different parties, which also limits collaboration. Authorities face other constraints on their ability to perform their functions. Regarding a key component of the second level of institutional capacity, appropriate financial resources, although the environmental sector increased its share of the total budget from 0.02% to 1.14% during 1990–2003 (SEMARNAT, 2001; Diario Official de la Federacion (DOF), 2003), it still receives a very tiny percentage. Of the total budget SEMARNAT spent in 2002, 74.3% was allocated to two water organizations (National Commission of Water and Mexican Institute of Water Technology). So the ministry allocated its even more limited resources (25.7 of its total budget) to too many programmes (from natural protected areas, to industrial and urban pollution) for it to play an effective role in environmental policy management.

Authorities lack sufficient and adequate personnel with the technical knowledge to monitor emissions and see that standards are met. On top of that, environmental efforts are constrained by institutional instability. With very few exceptions (the Ministries of Finance and Foreign Affairs), there is no civil service in Mexico and turnover rates are very high among government personnel, even at technical levels. Many training efforts become thus ineffective (Tudela, 2003, p. 13).

Another constraint relates to diverse features of Mexico’s legal regime, which does not provide a key component of institutional capacity: stable and clear rules. The regime relies mainly on administrative institutions and measures for interpreting and complying with the law. Differently from the United States, with its strong litigation culture, in Mexico dispute resolution and law enforcement are basically based on administrative mechanisms and negotiations between participants. Mexico lacks a strong presence of environmental NGOs, grassroots movements and other groups pressing for regulations to be strengthened (Romero Lankao et al., 2005b).

The following characteristics of our legal regime have negative implications. Executive governmental bodies have greater relative power to take unilateral actions (Pezzoli, 2000, p. 163). Both local authorities and sectors interested in getting a transport concession, being monitored or occupying land constantly negotiate, contest and change land-use, transport and environmental regulations. As a result, the doors are open for corruption and for weak or deviated enforcement of carbon-relevant measures. For example, a culture of impunity is widespread among drivers; traffic regulations function as ‘recommendations’ that nobody obeys (Romero Lankao et al., 2005a, p. 100).
Last but not least, government’s institutional capacity has been further constrained by such profound institutional changes as deregulation, decentralization and reduced governmental expenditures. Responsibilities such as the provision of Ruta-100 Buses and regulation of concessions practically disappeared and/or were ‘decentralized’ to the private sector and local authorities. Public transportation was deregulated, and the state rolled back from its interventionist role (Ilas Rivera, 2000). This contributed to three carbon-relevant processes: (a) growth in car ownership and use, from 91 passenger car per 1000 persons in 1986 to 178 passenger car per 1000 persons in 2000; (b) a vacuum in the provision of high-capacity modes of transportation, as local authorities have not been successful in attracting private enterprises, or in reorganizing an integrated system of public buses; (c) shift in mode share from Metro and buses to minibuses (locally called peseros or colectivos) among other low-capacity modes; and (d) a paradox: private cars, which contribute 16.1% of the 29.5 vehicle trip segments daily made in the MCMA, release 40.8% of CO₂-equivalent emissions, while public transport undertaking 83.8% of those trip segments emits 25.9% (Romero Lankao et al., 2005b, pp. 90–93). Decentralization of responsibilities has led to a paradox: more responsibilities are delegated to local authorities, but, as described above, these authorities lack the financial resources—and even the decision-making power—to undertake effective policies.

How Do Local Authorities Manage Global Issues?

Cities are not only the main drivers of GHG and other atmospheric emissions; they are also key centres of innovations aimed at de-carbonizing our societies. Mexico City is not a big emitter in comparison with cities in high-income nations. Yet, as in cities in the developed world, the local authorities have developed a refined framing of the carbon domain and its relationship to air quality; they have designed strategies and institutional structures to target air quality, the main local concern, and to relate it to climate change; authorities hence “localized” carbon emissions by relating them to an existing local agenda. The group led by Mario Molina, Claudia Scheinbaum and ICLEI played a key role in shaping this agenda and facilitating a learning process.

This influence has not been enough to push real and effective policy strategies and actions. Unlike the integrated and broader framing of the carbon domain, policy actions have remained narrow and targeted a comparatively small proportion of both emitters (energy) and drivers (technological) included in the management taxonomy. This paper has filled a research gap through the analysis of the institutional settings and governance structure of a city in a middle-income country. It has shown that policymaking has been constrained by diverse institutional factors. The administrative structures of governance do not fit with city’s boundaries and carbon-relevant functioning. The seat of the federal powers is placed in the Federal District, where Mexico City, the most important national economic hub, has historically been located. In its double role, Mexico City faced over almost a century
a contradictory process of centralized control by the federation, and institutional fragmentation of local structures and political participation.

The political reform taking place in the context of decentralization did not change such features as centralization, complexity and fragmentation. The diverse coordinating commissions and programmes created to deal at the city level with such carbon-relevant issues as urban planning do not seem to have allowed authorities to deal with the problem of institutional fit. The authorities have not achieved much coordination thus far; the city’s organizational structure does not match its socio-economic boundaries and functioning. Diverse factors may explain this. The disparity between the fiscal capacity of the federal government and the Federal District on the one hand and of the states and municipalities on the other leads to a paradox: more responsibilities are delegated to local authorities, but they lack the resources to undertake effective policies. The authorities do not have both a culture of cooperation and a common and broadly shared metropolitan vision, which may be due to the effects of both election laws and governing by diverse parties. The government lacks other features of institutional capacity (e.g. human resources, money, and power) to manage air quality and GHG emissions. Characteristics of the legal regime, such as administrative mechanisms, negotiations among participants, and weak social participation, allow corruption and impunity to occur.

Institutional capacity is not an established fact but rather a changing process. As this paper has shown, centralized control by the federal government and institutional fragmentation have not allowed authorities to manage carbon-relevant issues at the city level. Rather than in enhancing the coordination, efficiency and effectiveness of policy implementation and enforcement, the emphasis of the government reform has been oriented towards democracy and political rights. The government’s institutional capacity has been further constrained by such profound institutional changes as downsizing and retrenchment of the state, liberalization, decentralization and deregulation.

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Notes

[1] Management is ‘the interplay between ideas and action in processes ranging from problem definition and goal articulation to the design and implementation of policies and other responses’ (SLG, 2001a, p. 3).
‘Institutions’ are defined as agreed-upon principles, norms, rules, procedures and programmes through which agreements as well as economic and extra economic power are wielded locally.

Public expenditure on transportation decreased 4.5% during 1981–2004. A caveat on this data: authorities constantly change the criteria by which they classify expenditure items. Therefore we made our own classification. (See Secretaría de Finanzas del Government of the Federal District (GDF), 1987; 1990; 2001; 2004.)

The city’s authorities recognize that as a non-Annex-1 country Mexico has no binding target for the reduction of GHG, and the city lacks financial resources to implement a mitigation programme. The strategy’s aim is rather to ‘benefit from the unique opportunities established through the Clean Development Mechanism’ (SMA, 2004, p. 18).

In 1982–1994, environmental concerns were under the purview of the Ministry of Urban Development and Ecology (Subsecretaría de Desarrollo Urbano y Ecología [SEDUE]). In 1992, SEDUE became the Ministry of Social Development (Secretaría de Desarrollo Social [SEDESOL]), together with two independent technical organizations: the National Institute of Ecology (INE) then in charge of drawing environmental regulations and the Attorney General’s Office for Environmental Protection (PROFEPA) responsible for enforcing of environmental laws and regulations. SEMARNAT, the Ministry of Environment, was first created in 1994 as the Ministry of Environment, Natural Resources and Fisheries (Secretaría del Medio Ambiente Recursos Naturales y Pesca [SEMARNAP]).

‘Lip service’ refers to authorities’ acknowledgment of the importance of certain issue domains but implies that this attention is not necessarily backed up with such strategies enhancing institutional capacity as adequate funding.

On the No Driving Day (‘Hoy no Circula’) about 20% of all private cars are forbidden from circulating one day a week according to the numbers of their plates.

Ruta-100 Buses had been provided since 1982 by the local government to deal with the collapse of the historically privately owned and operated bus companies. Ruta-100, which covered long-distance routes, was declared bankrupt in 1995. Since the demise of R-100, the government has undertaken various unsuccessful actions to concession out new bus services to the private sector.

References


