Urban Political Ecology Of Green Public Space In Mexico City:

Equity, Parks And People

by

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ABSTRACT

Decades of research confirms that urban green spaces in the form of parks, gardens, and urban forests provide numerous environmental and social services including microclimate regulation, noise reduction, rainwater drainage, stress amelioration, etc. In post-industrial megacities of the twenty-first century, densely populated, violent and heavily polluted such as Mexico City, having access to safe and well-maintained green public space is in all respects necessary for people to maintain or improve their quality of life. However, according to recent reports by the Mexican Ministry of Environment, green public spaces in Mexico City are insufficient and unevenly distributed across the sixteen boroughs of the Mexican Distrito Federal. If it is known that parks are essential urban amenities, why are green public spaces in Mexico City scarce and so unevenly distributed? As a suite of theoretical frameworks, Urban Political Ecology (UPE) has been used to study uneven urban development and its resulting unequal socio-ecological relations. UPE explores the complex relationship between environmental change, socio-economic urban characteristics and political processes. This research includes a detailed analysis of the distributive justice of green public space (who gets what and why) based on socio-spatial data sets provided by the Environment and Land Management Agency for the Federal District. Moreover, this work went beyond spatial data depicting available green space (m2/habitant) and explored the relation between green space distribution and other socio-demographic attributes, i.e. gender, socio-economic status, education and age that according to environmental justice theory, are usually correlated to an specific (biased) distribution of environmental burdens and amenities. Moreover, using archival resources complemented with qualitative data generated through in-depth interviews with key actors involved in the creation, planning, construction and management of green public spaces, this research explored the significant role of public and private institutions in the development of Mexico City's parks and green publics spaces, with a special focus on the effects of neoliberal capitalism as the current urban political economy in the city.

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CHAPTER 1

IDENTIFYING THE PROBLEMATIC OF GREEN PUBLIC SPACES IN MEXICO CITY

My paternal grandparents settled in Mexico City during the late 1940s looking for a better life. They came from small mining communities in the rural area of *Real de Catorce* and *Capulhuac* in the Estate of Mexico and San Luis Potosi respectively. They decided to inhabit the *Santa Maria La Ribera* neighborhood, one of the first *colonias* in Mexico City; the space offered low lease prices and a promising location to start a business. Their house was located in a *vecindad*, a building containing a number of low-income homes. I can vividly recall my grandmother telling me that the best part of *Santa Maria* was its park, the *Santa Maria Alameda*. She told me parks were like having a little part of the forest in the city and that it was important to remember our roots in nature, to be close to it. *Santa Maria* remains one of the most marginal neighborhoods in Mexico City. Violence, sanitary issues and unemployment surged after the 1985 earthquake (Boils, 2005). At the time, the area was redeveloped and a large number of government-subsidized housing projects emerged to fulfill the need of accommodating cheap labor for industrial complexes that invaded the zone. As the neighborhood decayed, the use of public spaces such as the *Alameda* decreased significantly. Urban infrastructure deteriorated as a result of governmental disinterestedness in maintaining public spaces. The main priority was to spur productive capability and all resources were syphoned into industrial infrastructure (Tello Peón, 1998).

Notwithstanding the wretched circumstances, people never stop seeking and nursing their connection with nature. In all *vecindades,* people are prone to keep a variety of flowers and small trees that help them to "feel at home". This practice has been thoroughly documented

as a well-established cultural custom among low socioeconomic status populations in Mexico City (Lewis, 1959) and in several cities of Latin America (Hayner & Montiel, 1964). The poorest people, some of them living without electricity and struggling to feed their youngest, had at least one *maceta* (flower pot) with plants and flowers to make days better (Picture 1).

Green public space deficit and uneven distribution as a socio-environmental issue in Mexico City

Regardless of ample empirical evidence demonstrating the importance of a healthy relation between humans and nature, cities have become increasingly grey and sterile. Mexico City, the second largest city in Latin America, is not only a clear example of post-industrial urban desertification and environmental destruction, but also an pronounced instance of environmental injustice in the form of uneven distribution and access to nature in an urban setting.

According to a report by the Mexican Ministry of Environment created in conjunction with the Inter-American Development Bank, in the year 2000, 5.66 m^2 of green public space were available per habitant in Mexico City (Gobierno del Distrito Federal, 2000), a figure below the United Nations recommendation of 16 m^2/hab, and also lower than the international minimum standard of 9 m^2/hab suggested by the World Health Organization (Sorensen et al., 1998).

Picture 1. Urban nature in a Mexico City *vecindad*

Moreover, Mexico City has a distinctly uneven distribution of urban green areas across different boroughs[1]; for example, the boroughs of *Miguel Hidalgo* (12.6 m^2/hab) and *Gustavo A. Madero* (8.8 m^2/hab) hold a disproportionately high distribution of green space compared to *Iztapalapa* (1 m^2/hab) and *Cujimalpa* (1.5 m^2/hab)(Flores Xolocotz & González-Guillén, 2012).

Although these numbers do not reflect important details such as accessibility, patterns of use or physical conditions of green public spaces, they are indicative of unequal distribution and point to a general deficit of green public space in Mexico City.

The current state of green public space in Mexico City— unevenly distributed and below international recommendations— is a serious socio-environmental issue. Decades of research confirms that urban green spaces in the form of parks, gardens, and urban forests provide many environmental services within cities including cleaner air and water, microclimate regulation, noise reduction, rainwater drainage and energy savings (Bolund & Hunhammar, 1999). In a megacity such as Mexico City— facing perilous levels of air, soil and water pollution (Ward, 1990)— it is utterly important to study and manage urban ecosystems providing environmental services capable to ameliorate such conditions (Bolund & Hunhammar, 1999). Moreover, research across a range of disciplines (such as psychology, urban planning, public health, and geography) demonstrates a broad array of health and well-being cultural services associated with the human experience of nature in cities (Wolf, 2012). Living in a "Urban Leviathan" such as the Mexican *Distrito Federal*[2] has been described as a chaotic, exasperating and frightening experience (Davis, 1994); a metropolis where dwellers "are sucked into the vortex of this intense struggle of hundreds of thousands of Mexican

[1] According to the Mexico City inventory of green pubic space created by the Directorate of Urban Reforestation, Parks and Bike Paths, 2002.
[2] Population Of 20.1 Million (INEGI, 2010)

citizens to survive in a city that, to them, appears for the most part hostile and malignant" (Pezzoli, 2000). Clearly, in megacities of the twenty-first century— densely populated, violent, undeveloped, post-industrial and postmodern— such as Mexico City, having access to safe and well-maintained green public spaces is in all respects necessary for people to continue or improve their quality of life. Thus, if it is known that parks are essential urban amenities, why is green public space in Mexico City so scarce and so unevenly distributed?

Parks in Mexico City, inherently public amenities and the most common sources of public green space in the city (Wakild, 2007), have just recently started to be discussed as social and environmental justice issues by Mexican media and the general public. The reason for this renewed interest in parks emerged after two unprecedented events regarding green public spaces in the *Distrito Federal*. In 2012 two urban parks were privatized in the borough of *Miguel Hidalgo*, northwest of Mexico City, dispossessing several neighborhoods of their green spaces. Firstly, in November, 8950 m^2 of *Chapultepec* Park—the largest park in Mexico City—were "definitely lost" to *Trepi*, a real estate company (*La Jornada*, 2012). After twenty years of litigation against the administration of Mexico City, accused of a "process of illegal expropriation"[3], *Trepi* won the legal dispute. Immediately after the Supreme Court resolution, the firm put the land on sale via *LivRealty* (Chicago, IL) a company dedicated to commercialize luxury real estate (*La Jornada*, 2012). This event effectively deprived the population of Mexico City from a large area declared "of high environmental value"[4] to a foreign firm that intended to offer luxury residences with *Chapultepec* Park as their backyard. Losing part of *Chapultepec* ignited a series of protests against *Trepi*, now owner of former

[3] Supreme Court of the Nation, case 1321/2007

[4] Expropriation Decree, Federal Mexican Government, 1992

public parkland, and against the government of Mexico City that was incapable of preserving a desirable urban amenity.

The second case is *Reforma Social* Park, also located in *Miguel Hidalgo*, which served as a park for 33 years. In 1977, the land located at the *Hacienda de Los Morales*— currently the *Reforma Social* neighborhood— was expropriated to create a working-class residential area and a public park. A long and irregular legal process concluded in 2008 when the Supreme Court of the Nation ruled in favor of the *Cuevas-Lascurain* family—owners of the land before the expropriation—transforming the *Reforma Social* neighborhood's park into private property. A sizable amount of green public space—34, 000 m^2 that served 400 mid-income families—was lost to construct a gated apartment complex. As a result, neighbors in the area and people claiming to use the park on a regular basis organized to protest against the decision of the judge; the *Reforma Social* Park was "occupied" during the weekends of several months as a demonstration against the "unfair dispossession of the people's park". The past administration of Mexico City (2006-2012) responded sending public forces and anti-protest groups to contain walkouts and other forms of protest. Regardless of several mobilizations organized and supported by NGOs and even Mexican mass media to reclaim the space, the *Reforma Social* Park remains private property.

Conversely, during the last twenty years, Parks were also created in Mexico City. Two noted cases are *Bicentenario* Park—also in *Miguel Hidalgo*—and *Cuauhtémoc* Park in *Iztapalapa*. According to official reports and public declarations, both parks "aimed to ameliorate the extreme environmental contamination in the Mexican capital" and "strove to rectify social differences" among Mexico City dwellers. However, regardless of the fact that the intentions of Mexico City's government could appear legitimate in a functionalist sense, there is more to be examined about these parks. *Bicentenario* and *Cuauhtémoc* parks are unique; both were

constructed upon open spaces previously used by heavy industries— an increasingly common occurrence in the post-industrial landscape of Mexico City. *Bicentenario* Park was constructed on a brownfield site that served for more than sixty years as a refinery where— according to environmental impact assessments— heavy industrial processes destroyed the possibility to use the space for any other purposes than a park. It is difficult to imagine how a place that used to be a refinery is now serving as a public green space. Is this park a safe place to visit? Why did the refinery stop its production? Is this space really fulfilling social and environmental needs? Was population consulted about the project?

For the case of *Cuitláhuac* Park— located in *Iztapalapa,* the most marginalized borough of Mexico City— the story appears to be similar. This park was constructed upon one of the largest urban landfills of Latin America; the project was publicized as one of the most ambitious socio-environmental projects in the history of Mexico City's public green spaces. Today, after a reported initial inversion of $14 000 million Mexican pesos, the smell produced by biogas resulting after garbage decomposition beneath the parks is preventing park users from visiting the site. Moreover, scholars from the *Universidad Nacional Autónoma de México* (UNAM) noted that some areas of the park were "sinking"; thus, accusations of "technical negligence" were made against the administration of the *Iztapalapa* borough arguing that "studies made to assess the soil mechanics of the site were not conclusive" and that the project's location was completely arbitrary (La Jornada, 2012). Again, if there is sufficient data suggesting that this park should not be there, why is Mexico City's government trying to solve the environmental issue of insufficient green public space creating a park over a landfill?

In summary, green public space availability in Mexico City is insufficient according to international standards, it is unevenly distributed among boroughs, and it has been

disappearing in favor of commercial urban infrastructure— predominantly luxury housing projects and shopping centers. In addition, recent efforts to remedy this situation are showing signs of technical, environmental and social negligence. The current state of green public space in Mexico City is evidently inadequate for the majority of its dwellers.

This research will explore why and how these current conditions emerged. Clearly, uneven distribution of green public spaces in Mexico City constitutes an urban environmental injustice. Three critical components of such environmental injustice will be described: 1) the socio-spatial distribution patterns of green space (who gets what and where) 2) the social and institutional mechanisms that recognize the need for green space among demographically distinct populations and 3) the specific social, economic and political processes that have influenced the creation, access and distribution of green public spaces in Mexico City. Therefore, using the four case studies discussed above, the following chapters will explain why and how past and present forces are driving the current uneven production of green public spaces in Mexico City.

Theoretical Framework: Urban Political Ecology and Environmental Justice

Urban Political Ecology

As a theoretical framework, Urban Political Ecology (UPE) has been used to study uneven urban development (Smith, 2008) and its resulting unequal socio-ecological relations. UPE studies the complex relationship among environmental change, socio-economic characteristics and urban political processes. According to Byrne, Kendrick, & Sroaf, (2007:157) there are "several principles and mid-range concepts upon which most urban political ecology studies are predicated". They include: 1) a novel conceptualization of marginality in which political, ecological and economic aspects may be mutually reinforcing,

2) a closer examination of "the role" of poverty within environmental issues (closely related to environmental classism and environmental justice theory), and 3) the interrogation of the 'facts' of socio-environmental degradation. Furthermore, UPE highlights the importance of the historical depth and plurality of approaches in understanding causes of marginalization and environmental degradation (ibid).

Within the context of Marxist UPE, a robust body of research has examined urban political economy, private-public property relations, and race and class as determinant factors driving the social production of nature in cities (Brownlow, 2006; Heynen, 2006; Keil, 2003; Swyngedouw & Heynen, 2003). Marxist UPE offers theoretical avenues to explain green spaces' deficit and uneven distribution in Mexico City suggesting that socio-ecological relations are the result of past and present structural processes inherent in urban political economy, such as income inequality, uneven property ownership, and the increased marketization of urban space/nature. This theoretical approach is particularly appropriate to study socio-ecological relations in Mexico City given two facts. Firstly, "capitalism, and more specifically, neoliberal capitalism, although geographically differentiated across global axes, is now the ubiquitous mode of production affecting the development and environments of cities across the planet"(Heynen, 2006a: 4). Mexico City is not an exception but a quintessential example of a city that transformed its urbanization and growth patterns after years of neoliberal modernization (Delgado, 1995, 1997, 2000, 2004). Secondly, as discussed earlier in this chapter, recent events of green space dispossession have been taking place as a result of institutional negligence, apparent entrenchment of corruption (Becker & Müller, 2013; Davis, 2013; Faughnan, Hiskey, & Revey, 2014; Ionescu, 2011; Montiel, Husted, &

Christmann, 2012)[5], and uneven relations of power that render city dwellers extremely limited in their abilities to defend green spaces. Land use laws in Mexico City are contingent upon the political economy of the city and are invariably influenced by the current neoliberal model of production that dictates specific capital accumulation practices; these pervasive practices in Mexico City relegate the importance of procuring public green spaces for the sake of financial profit as in the case of *Chapultepec* and *Reforma Social* Parks and also, arguably, for the cases of *Bicentenario* and *Cuauhtémoc* parks.

UPE theoretical lenses allow investigating how particular urban environments are produced and "who gains and who loses" based on three theoretical tenets: nature-society are amalgamated in a dialectical relationship, human-nature interactions are contingent on "historical geographical materialism" and unequal power-relations (re) produce urban landscape (Roy, 2011). UPE postulates that everything within a city is an inseparable embodiment of nature and society; therefore inequalities are ultimately results of complex dialectical socio-natural interactions. In this regard, studying green space in Mexico City is a task that must incorporate both social and ecological aspects involved in the production of

[5] Corruption in Mexico has been documented and analyzed thoroughly. According to Faughnan et al. (2014), Mexico continues to exist within a "context of corruption" (authors examined the "business as usual" attitude toward corruption among government officials and citizens). In general, corruption has been identified to be "widespread in the general environment" of Latin American cities (Montiel et al., 2012). Instances of academic research dealing with corruption in Mexico are numerous. For instance, Oliva (2012) focused on environmental regulations and corruption for the case of automobile emissions in Mexico City. In addition, Davis (2013) documented and discussed the dynamics of Mexico City's downtown real estate development and land-use collusion between elected officials and private developers in the name of security policy. Davis (ibid) demonstrated that the social, commercial, and political life in downtown was controlled by local police forces funded by local and international business lobbyists. Finally, Becker and Muller (2013) examined the "informal practices of negotiation" ubiquitous in Mexico. All cited authors found evidence pointing to an entrenchment of corruption patterns, particularly visible in the Mexican capital.

urban environments in the city. Therefore, the privatization of parkland or the creation of parks over brownfields and landfills in the Mexican *Distrito Federal* emerge as a result of intricate power relations that can be explained studying the historical, material and geographic characteristics of Mexico City.

Environmental Justice

Environmental justice research has examined the "correlations between race and class and the equitable distribution of environmental risk as well as access to environmental amenities"(Bolin et al., 2000) sharing UPE's objective to identify "who gets what and why" (Turner & Wu, 2002) . In the case of Mexico City, data clearly show green spaces are unevenly distributed; nevertheless, there is no official information regarding green space distribution per habitant in relation to specific socio-demographic characteristics. Considering the recurrent uneven distribution of environmental amenities and hazards in cities around the world (Schweitzer & Stephenson, 2007), environmental justice theory postulates that the distribution of urban risks and benefits are disproportionally biased against non-white minorities (environmental racism) and lower socioeconomic status population (environmental classism). This theoretical assumption is well-suited to study green space in Mexico City as all 16 boroughs comprising the Mexican *Distrito Federal* feature considerable economic, social and demographic differences. The question is which socio-demographic characteristics are influential in the distribution of green space in Mexico City, as suggested by environmental justice research.

It is important to underline that environmental justice extends beyond socio-spatial patterns. Incorporating three dimensions of justice: distribution, recognition and procedure has been proposed to be the most suitable way to accomplish a "richer, multidimensional

understanding of the different ways in which environmental (in) justice and space are co-constituted" (Walker, 2009). Therefore, environmental justice scholars have concluded that in order to fully understand what "justice" is, it is necessary to analyze the legal, economic, historic, cultural, social and political processes that result in urban landscapes (Schlosberg, 2004).

Mexico City as a Case Study

Current environmental issues in Mexico City have been studied by multiple disciplines, particularly the natural sciences, focusing mainly on measuring air and water quality (Lezama, 2000; Ward, 1990). However, social dimensions of environmental problems in the Mexican capital have only been marginally analyzed. Since the last decade of the twentieth century, when the work of several academics investigating the social, economic, environmental and cultural production of Mexico City emerged (e.g. Davis, 1994; Nord, 1996; Pick & Butler, 1997; Ward, 1990), only a few scholars have engaged in tracing the evolution of socio-ecological changes in the Mexican *Distrito Federal* over time.

Given the current uneven distribution and general deficit of green space in an increasingly post-industrialized Mexican capital—with escalating levels of air and water pollution, constant population density growth and global forces driving rapid urban development—investigating the socio-ecological production of urban nature is a timely and urgent academic task to undertake. For that reason, this research presents in detail the origins, specific socio-demographic characteristics, and current drivers of uneven green space distribution in Mexico City as an environmental injustice. Four case studies will serve to examine Mexico City's political ecology of green space and the various ways environmental injustices emerge. All case studies are representative examples of how parks (and green spaces) are materially

and discursively produced. The case studies were contextualized and compared to identify common trends useful to describe the political ecology of green space in Mexico City.

Study Purpose

The main purpose of this research is to characterize the political ecology of green space in Mexico City in order to explain why and how social and environmental injustices emerge. Describing the political ecology of a city is useful to identify the structural forces capable to generate tensions and conflicts over time (Cronon, 1992; Davis, 2006; Gandy, 2003). My goal is to demonstrate that uneven distribution of green space is produced by a variety of socio-ecological factors rooted predominantly in the neoliberal political economy of Mexico City. Moreover, this research expanded on the specific socio-demographic features of Mexico City's uneven distribution of green space. Consequently, it is also the purpose of this study to contribute to two areas of environmental social science inquiry: urban environmental justice and urban political ecology research.

Research questions

UPE research suggests that both past and present structural processes inherent in the urban political economy are critical in the production of (uneven) urban environments. Thus, this research addressed two central questions:

1. What are the underlying historical and recent political, social, and economic factors that have produced uneven patterns of green space in Mexico City?

2. What are the current socio-spatial patterns of inequities in the distribution of green space in Mexico City?

Research Site

Mexico City has a total area of 1,485 km^2 (573 sq. mi) and a population of 8.851 million (INEGI, 2010). In addition, the Metropolitan Area of Mexico City (MCMA), comprising 16 boroughs, 59 municipalities of the state of Mexico and 29 municipalities of the state of Hidalgo (Map 1), has a population of 21.3 million (Delgado, 2012). Given the massive size of the MCMA and for practical reasons, I concentrated only in the Distrito Federal (DF) and its 16 delegations; I use Mexico City and DF interchangeably.

The socio-demographic composition of México City is highly polarized in terms of socioeconomic status; as a result, space in the city has been historically produced and organized upon a basis of fragmentation, inequality and social segregation (Aguilar et al., 2003; Aguilar & Mateos, 2011; Kuri, 2007; Saraví, 2008; Valenzuela, 2013). In their analysis of "urban space socio-demographic differentiation" in Mexico city, Aguilar & Mateos (2011) identified and examined six different "clusters" of socioeconomic populations in the post-industrialand "modern" Mexico City Metropolitan Area (MCMA): urban-rural marginal periphery, bureaucrats in housing projects[6], peripheral proletariat, mixed zones, educated middle class and urban elite. According to the authors, the socio-economic, cultural and political differences among these clusters were found to be significant; for example, on one hand "urban elites"— mainly an elder population, with very high levels of education and large houses with luxury amenities in an area with low population densities— were few in number and clustered in specific areas of the city. Conversely, the "peripheral proletariat" group— composed of younger, recent rural to urban migrants, working for minimum wage, with a high ratio children per parent living in densely populated zones— is wide spread in

[6] Authors argued that as Mexico was a highly centralized nation and most of the institutions in charge of public administration were in the capital, an historical need for housing projects to accommodate a large number of bureaucrats working for those institutions was needed.

many parts of the city and typically concentrated in the center of the Distrito Federal (Saraví, 2008). The precariousness of the proletariat in Mexico City can be acute compared to other groups with a higher socio-economic status; most marginal groups in Mexico City live without proper access to fundamental social assistance such as health services and the most basic sanitary amenities like potable water or sewer systems (Perló Cohen, 2005; Pezzoli, 2000).

In the third world, this type of urban condition in which socioeconomic attributes are deeply differentiated, uneven distribution and inequitable access to urban services are common and oftentimes biased against marginalized populations (Holifield, 2001; Schroeder et al., 2008). EJ and UPE scholars have studied extensively postmodern capitalist cities around the world finding similar patterns of uneven distribution environmental burdens and amenities(e.g. Bolin et al., 2000; Smith, 2008); nevertheless, research on production of green spaces vis-à-vis socio-demographic, economic and political characteristics as an environmental justice issue was not conducted in Mexico City before this research.

Research design

In what follows, I first describe the political ecology of green spaces examining the emergence of urban public space inequality in Mexico City from a critical standpoint. I present an analysis of concrete historical-geographical data that connects political economy, governmental institutions, property relations and socio-demographic features of contrasting areas of the city. To better understand the social production of green public spaces through the context of the Mexican urban political ecology, this research is divided in three phases:

Phase 1: Characterizing the political ecology of Mexico City's green public space.

Phase 2: Assessing the socio-spatial patterns of inequities in the distribution of public parks in Mexico City.

Phase 3: Assessing the influence of Mexico City's socio-environmental institutions on processes that resulted in events of green public space dispossession or privatization as an issue of environmental procedural justice.

Phase 1: The Urban Political Ecology of Mexico City's Public Green Space

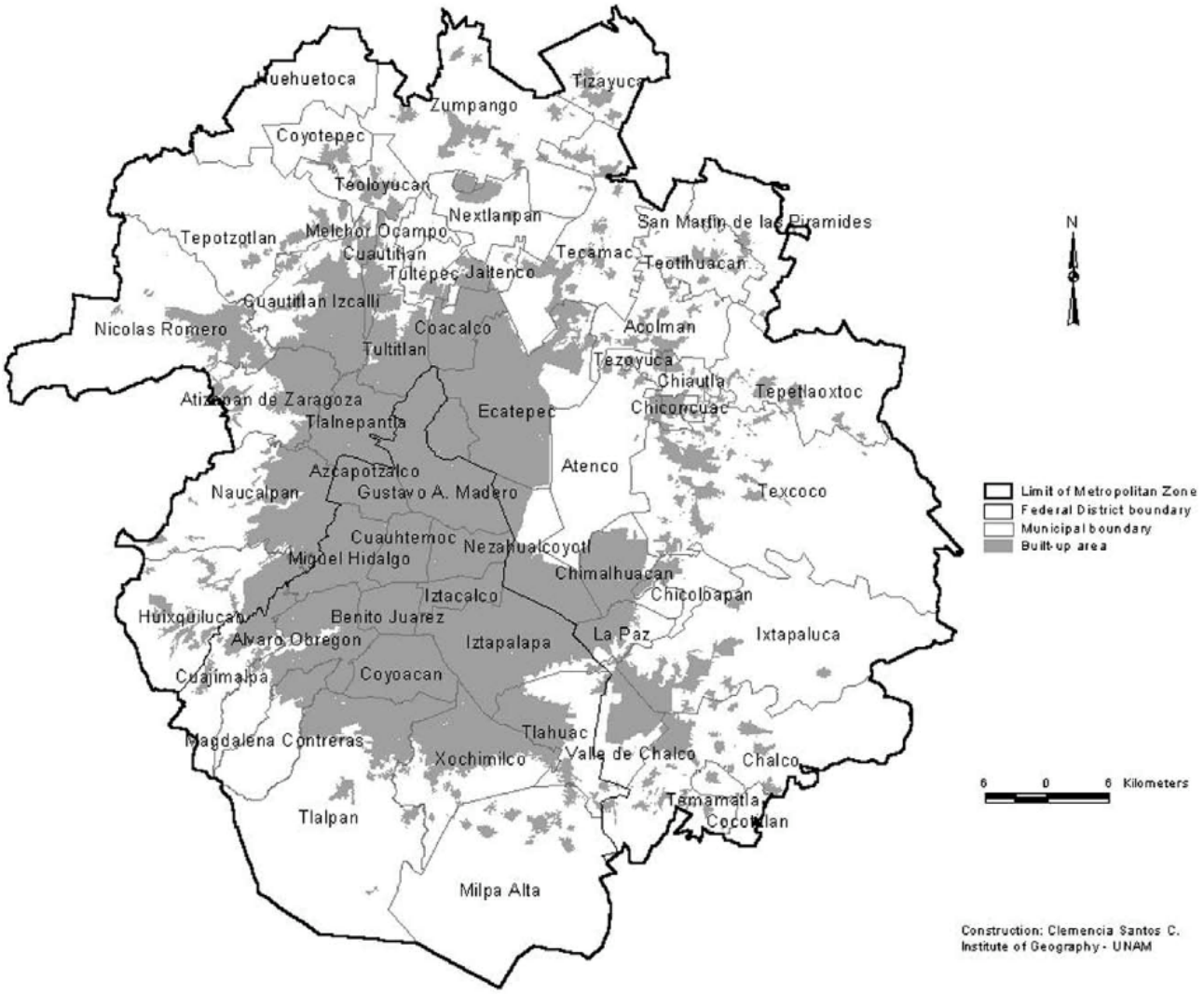
By integrating available data on green space distribution and the 2010 census from INEGI complemented with qualitative data generated through in-depth interviews with key actors involved in the creation, planning, construction and management of green space, this phase of my research examines Mexico City's political ecology of green space focusing on four public parks (*Chapultepec, Reforma Social, Bicentenario* and *Cuitlahuac*) as case studies. I focus on the effects of Mexico City's political economy, neoliberal capitalism, in the production/dispossession of these parks.

Archival research

I concur with Mallon (1994) in that "archives provide unique clues about power relations, and about the human, moral, and philosophical quandaries faced by the people who produced them" (p. 1507, in Servat, 2012) and with Brownlow (2006: 243) insight that "[any] story told cannot be separated from the larger, historical context […]".Understanding the historical development of green space in Mexico City and the reasons why it emerged to transform the urban landscape is central for this research. Therefore, exploring and analyzing documented evidence of how green space material and discursive production has been

influenced and (re) shaped by different events and actors through the years was a main objective of my doctoral dissertation.

Map 1. Political limits of Mexico City, the Federal District, the Metropolitan Zone and the built-up area (Aguilar et al., 2003).



I found and examined documents produced or published as early as 1921, concentrating particularly on data from 1994[7] onwards—when the political economy model in place started to transform Mexican Cities' landscapes in an unprecedented manner (Delgado, 1995, 2000, 2004). I analyzed archival data[8] and secondary data on green space in Mexico City to identify past and present forces driving the political ecology shaping urban environmental conditions in the Mexican Capital.

Moreover, I paid special attention to academic literature within natural sciences in order to identify key ecological characteristics of the urban nature in Mexico City. Post-human Political Ecology suggests that all parts (or "actants") of a socioecological system have a specific degree of power (or "agency") to transform the system itself; therefore, sciences like biology and its wide variety of sub disciplines, dealing specifically with the flora, fauna and the general ecological/physical environment in Mexico City were of utter importance for my research. I included, for example, the Inventories of The Arboretum of Mexico City by Márquez (1997)and the Climate Analysis of a *Periurban* Park in Mexico City by Jáuregui et al. (2008). My objective collecting and examining data on the ecology of Mexico City's environment was to create a bridge between social sciences and natural sciences. I did not intend to develop functionalist guidelines that could dictate where to place parks or gardens, but rather highlight the "agency" of "actants" in the production of green space in the city.

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[7] Delgado (1995) highlights the importance of this year due to the fact that the North American Fair Trade Agremment (NAFTA) created dramatic changes within and outside Mexican Cities.

[8] Archival data refers to information collected for bureaucratic, service, or administrative purposes and secondary data is information collected by other researchers, available either through public sources, or through negotiation with the data collector (Schensul & LeCompte, 2012). I collected written documents, reports, letters, newspaper articles, academic articles, books, city plans, and reports made by non-governmental/non-profit organizations on the topics of urban parks and green public space in Mexico City.

Wakild's "Naturalizing Modernity: Urban Parks, Public Gardens and Drainage Projects in Porfirian Mexico City" (2011) was a very important academic effort that informed my research design. Wakild analyzed the critical role of historical characters of an important period of Mexican history during the 1920s (commonly identified as the *Porfiriato* age) that were key for the decision-making processes inside Mexico City. As with Wakild, I identified the most relevant historical actors, laws, practices, covenants and policies that are still animating the political ecology of green space of Mexico City. The institutions that I focused on for this part of the research were:

1) Environment and Land Management Agency for the Federal District.
2) Directorate of Urban Reforestation, Parks and Bike Paths, Mexico City.
3) Mexican Ministry of Environment.
4) Mexico City's Ministry of Environment.
5) *Archivo General de La Nacion.* (National General Archive)
6) *Universidad Autónoma de México* (UNAM) Library.

Boone et al. (2009: 784) concluded their research stating "it is difficult to understand the process of environmental inequity formation without comprehending the historical and institutional dynamics that create such inequities". Following their recommendations, my analysis consisted in tracing historical processes that have generated legacies that informed or influenced current social and political decisions on green space production in Mexico City.

In-depth semi-structured Interviews

According to Heynen (2006a: 8) "to better situate the findings based on quantitative data" in-depth interviews should be conducted with people that have a direct knowledge of the city's green space paying special attention to those currently involved with parks. Following the authors' recommendation, I contacted and interviewed Mexico City's key governmental actors in charge of socio-environmental institutions (directors, sub directors and borough chiefs), park managers, public space managers, biologist, ecologists and other scholars investigating the ecology of green space in the city, urban-forestry specialists of Mexico City Urban Forests Department, and 2 representative not-for-profit stakeholders per case study (NGO leaders). For this part of the research I followed Brownlow's (2006) procedures for interviews. Interviews were loosely structured around topic areas. In order to facilitate discussion and draw from oral histories and narratives of Mexico City and its green spaces over the past decades I used open-ended questions and conversation techniques (Schensul & LeCompte, 2012). All interviews were personally conducted, recorded, and transcribed. The interviews enabled me to ask questions concerning the relationship between the political ecology of green space, the production of parks and environmental justice issues in Mexico City. The respondents' insights provided important details otherwise lost in purely quantitative research methods.

Phase 2: Inequitable green public space distribution in Mexico City as an Environmental Injustice

This research analyzed the two different notions of environmental justice proposed by Walker (2009) — distribution and procedure.

A detailed analysis of the distributive justice of green space (who gets what and why) is a central point of my research. I used available maps and data sets provided by the Environment and Land Management Agency for the Federal District on green space. I decided to use data from this particular institution due to the fact that it is the only governmental agency providing a recent assessment of green space in the city (updated in 2009). Current maps and data depict available green space (m^2/habitant) but do not explore the relation between green space distribution and other socio-demographic attributes (i.e. race/ethnicity, gender, socio-economic status), which according to EJ theory, are usually correlated to an specific (unequal distribution of environmental burdens and amenities.

I examined green space distribution patterns for the entire *Distrito Federal* and within the boroughs of *Miguel Hidalgo* and *Iztapalapa* individually using a "Needs-Based Assessment". For the analysis I incorporated three socio-economic indicators included in the last Mexican census of 2010:

1) Poverty levels (based on CONAPO's marginality ranks[9])

2) Number of citizens in the area (in order to calculate a Park Pressure Index)

3) Housing characteristics (owning or renting).

Maps indicate, for example, that there is higher availability of green space in *Miguel Hidalgo* (wealthiest area of the entire *Distrito Federal*) and that population density is much lower than in other Burroughs of the city. As green space concentrates in an affluent area with low

[9] The National population Council (in Spanish, Consejo Nacinal de Poblacion) defines the "marginality ranks" as and index to determine population impoverishment based on education, housing, population density (localities with less than 5000 inhabitants are considered excluded and concomitantly prone to marginalization) and income (CONAPO, 2010)

population density it can be inferred that green space distribution is not only uneven but also inequitable in Mexico City. Therefore, exploring the political-economic basis of uneven/inequitable green space distribution in Mexico City was instrumental in providing evidence sufficient to demonstrate that social and economic factors— as those included in the Needs-Based Assessment— play a key role in producing uneven urban environments The objective of this phase of my research was not only to show that upper income population tend to have more and better maintained green space on their properties or nearby their residencies, but to identify the endemic spatial characteristics of Mexico City that influenced or produced those conditions.

Phase 3: Environmental procedural Justice

The third phase of my research assessed procedural justice in regards of the social and institutional dynamics that create green spaces and govern how these are used and perceived. I examined the public and private institutions that played a significant role in the development of Mexico City's parks and green spaces, with a special focus on the effects of neoliberal capitalism as the urban political economy of Mexico City. As Boone et al. (2009: 771) concluded: "a deeper historical understanding of urban and institutional dynamics is necessary to comprehend the unexpected distribution of parks […], as well as to advance environmental justice theory".

For this phase of my research I concentrated in the archetypal neoliberal practice of privatization of public space in the city (Harvey, 1989, 2008) in relation to the projects such as the *Alameda Central* and the *Chapultepec* and *Reforma Social* parks. During this phase I investigated two fronts involved in the process of parks privatization: governmental institutions responsible of managing green space, and urban non-governmental organizations

contesting park dispossession. For both sides I inquired as to the legal, economic, social and political processes that culminated in the loss or privatization of public.

Firstly, I examined governmental institutions. I scheduled visits with seven agency representatives in key institutions in charge of managing various aspects of green spaces and parks:

1) Environment and Land Management Agency for the Federal District.
2) Directorate of Urban Reforestation, Parks and Bike Paths of Mexico City.
3) Ministry of Environment of Mexico City.
4) *Miguel Hidalgo* green space key managers.
5) *Miguel Hidalgo* Parks and Gardens Agency.
6) *Miguel Hidalgo* Environmental agency director.
7) *Chapultepec* Forest Directorate.

I requested official documents to recreate the events that originated, influenced or fostered the dispossession of parks and green spaces in Mexico City. My goal was to identify key actors and their roles in the process of green space deprivation.

Non-Governmental Organizations Contesting Park Dispossession

Secondly, given the fact that political mobilization of minority-group protests against environmental or economic injustice has won many battles in the past (Pulido, 1996a, 1996b, 2000) and that environmental procedural justice studies' fundamental goal is to examine if and how people is incorporated in to decision making processes (Walker, 2009), I paid special attention to NGOs. I investigated the reasons why different groups decided to

contest park dispossession and how their struggle influenced the production of green space. I worked under the assumption that NGOs emerged because of a lack of communication between governmental institutions and city dwellers that resulted in environmental and social injustices. That is, NGOs appearances are a symptom of an institutional inability to include citizens' needs into decision-making processes. My priority was to identify how exactly people could be excluded or prevented to be part of decision making processes. I had informal conversations with the leaders of three NGOs against the privatization of green spaces in Mexico City. These organizations, *Defensa Ciudadana del Parque*, *ALARBO* and *SalvoLomasChapultepec* have been present in all actions, meetings and protests against the dispossession of green space happening in *Miguel Hidalgo*. I scheduled meetings with leaders of these organizations and I conducted semi-structured interviews to discuss different topics related to my case studies. During the interviews, I centered the conversation on their experiences— as NGO leaders and as representatives of Mexico City residents— and I asked them if they have been considered or invited to assemblies, referendums or any form of democratic participation. Finally, I asked them if they have identified any specific force obstructing peoples' involvements in processes of production/dispossession of green space.

Data collected during phase 3 was divided in two categories: official (from governmental institutions) and civil society (from people involved in NGOs). I contrasted both sets of data in order to determine if there was an issue of environmental procedural. As Brownlow (2006), Byrne et al. (2007) and Kitchen (2012) have suggested there are many institutional mechanisms capable of perpetuating structural exclusion from decision-making processes regarding parks and urban forests. As expected, a political and economic elite that favors neoliberal practices such as public space privatization has controlled green space governance in Mexico City. Neoliberal practices often times result in "tensions between capitalist

production and consumption" (Kitchen, 2012) and in the case of Mexico City this entails transforming green space in to private property to generate financial profit. Therefore, these tensions created by neoliberal practices impede citizens and the community to engage in democratic processes in which social needs are discussed and accounted towards decision-making processes, hence, stimulating procedural injustices. Ultimately, my analysis revealed the actual relationships between institutions, park privatization and people in the context of neoliberalism in Mexico City.

Overview of the Chapters

This research manuscript is divided in 5 chapters. Following this introductory section, Chapter 2 presents a brief narrative of how neoliberal capitalism has influenced the production of Latin American urban spaces. The chapter concentrates on the socio-environmental transformation that have been occurring in Mexico City during the last two decades. An analysis of the systematic privatization of basic public services and the systematic acceptance of urban environmental deterioration for the sake of economic gain is presented. Chapter 3 expands on the uneven distribution and access to green space in Mexico City as an environmental injustice case. A quantitative and qualitative assessment of green space is offered in this chapter. Assessing the specific characteristics of the instructional legacies that have transformed Mexico City's landscape was the main goal of this chapter. Chapter 4 presents detailed characterization of the political ecology of green public spaces in Mexico City. The environmental history of Mexico City is coupled with economic and political landmarks that have transformed green space governance in Mexico City. A thorough assessment of the historical evolution of socio-environmental institutions in Mexico City is offered in order to identity the main actors and forces that have

determined the urban landscape of Mexico City, the socio-environmental relations among its dwellers and the consequences of environmental governance operating under neoliberal capitalist guidelines. Last chapter 5, presents the general conclusions in regards to the socio-environmental production of green spaces in Mexico City and the multidimensional injustices that result after the entrenchment of neoliberal practices in urban contexts.

This research will contribute to two areas of social science inquiry: urban environmental justice research and urban political ecology theory. This research is the first to examine the effects of the current Mexican neoliberal political economy in the production of green space in Mexico City. Understanding why and how scarce and unequal distribution of green space in Mexico City has emerged contributes to comprehend the mechanisms and processes that drive environmental injustice in Mexico. Furthermore, this research will also advance on the democratization of quality of life in Mexico City revealing processes that can foster environmental injustices in the form of inequitable green space distribution. Through in-depth study of selected boroughs of Mexico City, this research produced data with academic and practical worth, useful for informing strategies towards reducing unequal distribution of urban amenities, particularly parks and other forms of green spaces. This research provides valuable information for current and future administrations of Mexico City to foresee environmental injustices in Mexico City.

CHAPTER 2

NEOLIBERAL PRACTICES AND GREEN PUBLIC SPACE TRANSFORMATIONS IN LATIN AMERICAN CITIES: THE CASE OF MEXICO CITY

Introduction

During the 1980s and 1990s virtually all developing countries shifted from state-led to market-oriented, neoliberal economic policies. The consequences that manifested after this transition were, as Snyder (2001) described, contrasting and significantly transformative particularly in the Latin American region. Notwithstanding differences among countries, a pervasive geo-demographic pattern emerged in the region; cities surged in size and population density.

The United Nation's HABITAT program reported in 2012 that almost 80 percent of Latin America's population was living in cities and "in general, the process by which this subcontinent reached [its] level of urbanization has been positive, generating much hope but also bitter disappointments. Many of its cities have experienced traumatic transformation because of the speed and sometimes violent processes of urbanization marked by deterioration of the environment and, above all, deep social inequality" (HABITAT, 2012: XI). In the case of Mexico, along with urban expansion and population super-densification in its cities, the persistent urban context started to emerge as a source of a variety of concerns. The uncontrolled growth of cities developed a series of issues that stemmed from the incapacity of the Mexican state to manage rapid urban expansion. Meager transportation systems, deficient housing, inadequate provision of water and electricity, dispossession of green public spaces and general insufficiency of basic urban infrastructure, among other

issues, expanded in all major cities in Mexico (Eibenschutz, 1997).

Urban space transformations— derived fundamentally from the establishment of a global neoliberal political economy in Mexico— resulted in a fixed 'spatial intentness' for capital accumulation, the preeminent neoliberal goal. As cities became centers of capitalism where urban space, human resources and large markets concentrated and grew, urban issues also advanced into an irrepressible state (Harvey, 1989). The hegemonic neoliberal spatial practices in Mexico City— demanding circulation, exchange and consumption of goods above all other necessities— have resulted in deprivation of fundamental urban services for a livable city. This chapter will present the case of Mexico City and its dwellers as "casualties" of neoliberal capitalism, a force that dictates the principles used to (re) produce the city and the relationships residents have with their urban environment. In particular, I will examine how green public space in Mexico City has been commoditized and imagined by the local government as a mechanism to attract inversion and economic development over any social or environmental necessity. This chapter is divided in two sections. In the first section I provide a brief explanation of how neoliberalism emerged as a driving force in Latin America and some instances of its negative effects on urban environments. For the second section I will focus on Mexico City and the spatial transformations orchestrated by private capital operators aiming to create a globalized hub for production and consumption that does not provide a proper urban environment for all people to have livable spaces to reside. In this section I will elaborate on three specific effects of neoliberal capitalism in contemporary Mexico City urban environments:

1. Systematic privatization of basic public services, focusing on the provision of green public spaces.
2. Transformation of state institutions responsible of green public spaces in favor of capital accumulation and "economic development" based on neoliberal criteria.
3. Systematic acceptance of urban environmental deterioration for the sake of economic gain.

The *Alameda Central* project is presented in this chapter as a case study that shows how green public space in Mexico City has been gentrified to fulfill the need of projecting a "modern" and "sustainable" image that would attract investment to the Mexican Capital. Evidence shows that economic development in a neoliberal context overruns social and environmental needs in favor of capital profiteers who have invested resources in the city. The benefits of green public space gentrification, as in the case of the *Alameda Central* Project, have been directed to a small group of investors. Neoliberalism *a la Mexicana* has produced a new form of urban space privatization: local governments are hired and paid by multinational corporations to "renovate" spaces in the city in order to enhance their (the corporations) capability to accumulate capital. Concomitantly, governance of the city is tainted with neoliberal goals that prevent local administrations from fulfilling social needs that are invariably displaced by financial goals. In addition, socio-environmental institutions in the Distrito Federal have been dependent to foreign financial institutions such as the International Monetary Fund (IMF) and the World Bank for the past 20 years. Economic principles and guidelines imposed by international loaning institutions are deeply rooted in capitalist neoliberalism. Therefore, internationally subsidized socio-environmental institutions in Mexico City have been forced to steer away from social projects in support of

private accumulation objectives. Lastly, as a result of the quest for economic development, urban environmental deterioration in Mexico City has been increasing in a pernicious and constant manner.

Neoliberalism and cities in Latin America

In the course of the last two decades of the 20th century, the need of Latin American governments to remain competitive in an increasingly globalized economy resulted in the imposition of neoliberalism as the ruling political economic policy in the region. Developing countries around the world started to struggle with systemic inflation, unemployment, insecurity, and overall lack of economic development. Thus, in order to navigate through this bleak period, developing countries' governments were forced to borrow money from developed states and international financial organizations such as the IMF (Delgado, 1997). At the time, the political discourse in Latin America promoted by foreign companies and international observers (United Nations, North Atlantic Treaty Organization and International Monetary Fund, to name some instances) blamed the economic decline on the inefficiency of local governments to provide social services such as education, housing, health care or infrastructure for transport; Latin American administrations were portrayed as responsible of the fiscal deficit and accused of being unnecessary burdens that contributed nothing to social welfare (Jarque & Kuenzler, 1993). This is how Latin American states— with massive foreign debts and a pronounced need to regain economic and political control within their countries— succumbed to what Villareal (1993) identifies as the three general

neoliberal policies[10]: economic global openness, privatization of productive processes and deregulation of all economic activities.

The particularly harsh outcomes of neoliberalism in Latin America (mainly as a result of the absence of state regulatory systems) were unemployment, poverty, deep social inequality, ecological degradation and less security in certain productive sectors such as agriculture and other activities usually subsidized by the state (Portes & Roberts, 2005). Moreover, urban environments changed drastically in order to satisfy neoliberal rules and goals. The work of Centner (2009) in regards to the construction of *Puerto Madero* along the Southern Coastline of Buenos Aires, Argentina, provides an illustrative example of the multidimensional effects of structural changes affecting urban regions within a neoliberal context. The author states: "after all, neoliberalism as a political rationality prizes economic achievement above all else, and expects other goods to flow from the optimalisation (sic) of the economy" (ibid: 186). And in the case of *Puerto Madero* the overruling logic of capital accumulation displaced the demands of local residents. Centner analyzed the Urban Environmental Plan (in Spanish, *Plan Urbano Ambiental*) of the project to unveil how a disempowered local government overlooked environmental legislation (to protect wetlands in the area) and zoning regulations (to restrict the number and size of housing/commercial projects). The author reported that "by the late 1990s, the old brick customs houses, protected by historic preservation standards, had been converted to luxury residences, offices, and restaurants; in the rest of the space zoned for development, a few towers but mostly low-rise buildings had been completed or were under construction. Public parkland also opened in the area between

[10] For a detailed account on how Latin American countries transitioned from one political economy to the other during the 20th century see (W. C. Smith & Korzeniewicz, 1997)

high-end residential blocks and the wetland preserve"(ibid: 187). According to data presented by Centner, it was evident that the city's plan was tainted with private investors interests that aimed at obtaining capital returns at all costs.

Romero Lankao (2011) provided another illustration of the multidimensional effects of neoliberalism in Latin American urban settings focusing on socio-environmental relationships between residents and water provision. She conducted research in Mexico City to reveal the consequences of water management privatization in a developing country forced to follow neoliberal guidelines. Romero concluded: "notwithstanding the fact that the neoliberal water reform has been decisively encouraged in […] Mexico City (and other urban areas) in recent decades, it has neither satisfied its promoters' expectations nor has it given expression to values outside of immediate market concerns such as improving the sustainability water extraction and use" (ibid: 267). Yet again, in the case of Mexico's capital and its water, the fundamental issue according to Romero's findings was that "rather than acknowledging the multiple dimensions of water management and use (e.g., environmental and water as a human right) the neoliberal vision and oversimplification of water as a commodity permeated the framing of the water situation of the cities; […] the water reforms have shown that the free operation of the market alone is politically unfeasible"(ibid: 280). In the end, the underlying matter in question is the fact that non-market water values are prone to attrition in a neoliberal context in which the state is limited in its capacity to regulate and discipline overuse of resources without social benefits and for the sole sake of capital accumulation. Bodies of water are an essential component for livable urban environments; however, the pervasive neoliberal approach led to an overall diminishment of the environment within cities.

There is substantial evidence that neoliberal policies have persistently catalyzed ecological crises in all cities in Latin America. According to Galafassi (2002) three fundamental conditions— connected directly to the political economy of Latin American countries— had a profound impact on its environments: 1) massive industrialization after deregulation of economic activities that provoked 2) uncontrolled urbanization processes resulting ultimately in an 3) exorbitant demand for energy in urban centers.

Liverman & Vilas (2006) illustrated Galafassi's reasoning providing a quintessential example of a neoliberal fiasco from Mexico:

"Neoliberal processes alter the impacts of industrial activities on the environment mainly through changes in trade, investment, and environmental [de] regulation. The majority of studies on industry and environment under neoliberalism in Latin America focus on the impacts of NAFTA [North American Trade Agreement] in Mexico, especially on the manufacturing enterprises known as "maquiladoras […]; lack of legislation and enforcement, together with a weak institutional framework, have allowed foreign-owned manufacturing companies to continuously violate environment (and labor) laws. Together with lower environmental standards than on the U.S. side of the border, maquilas in Mexico have caused serious environmental damage in the border cities, evidenced through increased air pollution, water pollution and depletion, and inadequate waste management." (ibid; p. 334)

Opening the doors to foreign capital to invest in maquiladoras in border cities in Mexico resulted in the explosion of demographic concentration in cities like Tijuana, Hermosillo and Ciudad Juarez. Concomitantly, the demand for energy in those northern Mexican cities increased considerably; according to Aguayo & Gallagher (2005), overall growth in total energy consumption of the manufacturing sector grew 24.86% between 1988 and 1998. This, in turn, has resulted in industrial CO2 emissions increasing 17% (in Liverman & Vilas, 2006; p. 336). Hence, environmental degradation became an unaccounted but pervasive outcome of neoliberal industrialization of cities in northern Mexico as well.

Latin American literature examining the effects of neoliberalism on the environment has focused, in general, on non-urban settings. Research on fisheries (e.g. Thorpe, Ibarra, & Reid, 2000), forests (e.g. Zabin, 1998), agricultural land degradation (e.g. David, Dirven, & Vogelgesang, 2000) and water management (e.g. Wilder & Romero-Lankao, 2006), albeit extremely important to gauge the environmental and social costs of neoliberal polices, have failed to engage with the urban dimension of these socio-environmental issues. On the other hand studies of the effects of neoliberalism in Latin American cities have centered in the economic and social consequences overlooking its socio-environmental dimension (Durand Smith et al., 2011).

Neoliberalism, Mexico City and its Green Public Spaces

Latin American cities have become one of the most conspicuous testing grounds for neoliberalism and the case of Mexico City is a distinct example. Mexican cities are commonly characterized as megalopolis, megacities and global cities; all reports from the United Nations and its affiliated organizations, federal Mexican institutions, universities and research institutes incorporate these terms to refer to large Mexican cities. Such terms reflect the capitalist hegemony in the Mexican urban context that forces the production and reproduction of "cities for profit". A Megacity is always open to the world, completely immersed in globalization and its territory provides the material infrastructure for production and capital accumulation. Delgado (2000) argued that Mexican global Megacities' most significant feature is the capability to provide spatial means for mass consumption; in a neoliberal pragmatic sense, an exemplary capitalist city is not only substantially big but also economically dynamic. That is, it is capable of providing resources to foster and perpetuate capital accumulation at the largest possible scale. Therefore, given the essential role of cities

within a neoliberal context, it is fundamental for the system to secure growth in urban areas. As Mexican cities became larger, neoliberal systemic needs also became increasingly satisfied. Inextricably, the increase in the urban sprawl of Mexico City has resulted in a myriad of economic, social and environmental issues with devastating consequences.

The following section will address the repercussions of such neoliberal logic in the creation, management and eventual dispossession of green public spaces as an emerging socio-environmental phenomenon in Mexico City. Evidence confirms that the neoliberal "spatial intentness" that favors the use of urban space almost exclusively for capital accumulation has resulted in gentrification[11] of green publics spaces, institutionalization of neoliberal guidelines that fail to fulfill socio-environmental needs and thorough degradation of the urban environment in Mexico City. The following discussion will expand on three specific effects of neoliberal capitalism in contemporary Mexico City's urban environments: 1) Systematic privatization of basic public services, particularly green public spaces; 2) Transformation of state institutions responsible of green public spaces in favor of capital accumulation and "economic development" based on neoliberal criteria and 3) Systematic acceptance of urban environmental deterioration for the sake of economic gain.

Systematic privatization of basic public services: the case of green public spaces

Privatization of government enterprises and public services is one of the central features of neoliberal political economies. Considering that the essential economic neoliberal rationale

11 Gentrification has been defined by (Smith, 1996) as an occurrence in urban areas where prior disinvestment in the urban infrastructure creates neighborhoods that can be profitably redeveloped. In its earliest form, gentrification affected decaying working class neighborhoods close to urban centers where middle and upper middle class people colonized or re-colonized the area, leading to the displacement and eviction of existing residents.

demands that the market determine costs of production, prices and relevance of goods and services, non-for profit services are rendered pointless or dispensable. During the last decade of the 20th century in Mexico, the largest governmental ventures— petrochemical and electric— were protected and not privatized given its large scale and economic potential[12]. Conversely, urban services traditionally administered by the state such as solid waste collection and management, potable water provision, electricity generation, public security and public transport were offered to the private sector (Bustamante Lemus, 1993). The so called "privatization fever" did not allow the Mexican government to consider the perils of neglecting state provided services intended for social welfare that, within the neoliberal context, started to disappear. Consequently, public services provided by a structurally disempowered government eroded to the point of complete abandonment. Such is the case of urban green public spaces, originally provided as amenities for the social and environmental benefit of people.

Perino, Andrews, Kontoleon, & Bateman, 2014 reported that parks can have a direct economic value for developers constructing residential projects near GPS. For example, the value of a property within 5 miles of a park increases considerably over more distant areas. However, property value increases near GPS have also resulted in displacement of lower income populations. This is how parks, gardens and other forms of green public spaces in cities exist engrained in the logic of neoliberalism. The evidence that supports the systematic privatization or loss of GPS and general desertification[13] of Mexico City is substantial. For

12 As of 2014 both of this economic activities have been already privatized. This fact is illustrative of the increasingly uncontrollable power of private capital empowered by a neoliberal regime in Mexico.

13 See Wallace (1990) for a theoretical description of urban desertification. The author examined patterns of rising homicide and suicide, intensified substance abuse, low birth

instance, and as an important precedent, according to data collected by the Inter-American Development Bank, since 1996, from a total of $17, 5312 millions (United States dollars, USD) invested for the entire American continent, only $1.681 millions (USD) were destined to urban natural environment projects. The bulk of the budget was directed to sanitation, municipal development (i.e. solid waste management, electric grid development, development of basic level schools and hospitals) and housing projects (Table 1). Sanitation projects were the priority given that insufficient water provision in Latin American large cities jeopardized the possibility of governance in the region (Swyngedouw, 2005). Sanitation projects during the 1990s became the foundation for subsequent capitalist projects, all funded with private resources and with the same goal, to have a financial return in the form of interests or licenses to exploit and commercialize water resources (Delgado, 2012; Romero Lankao, 2011). The economic and political background that accompanied the privatization of water endured by virtue of the incapacity of the state to provide a solution to the water crisis by itself. Inevitably, after the Mexican state saw the opportunity to solve the water crisis with the help of private capital from international financial institutions, and despite all the strings attached, the privatization processes started to influence and ultimately dominate most services the state owed to provide.

A common neoliberal practice in Mexico City, following the tendency towards privatization of urban services, has been the juxtaposition of grand urban projects funded with private capital and socially oriented programs funded with fiscal resources. In the present, Mexico City public administration relegates its responsibility to provide urban services for the purpose of fulfilling social needs and become "investors" or "partners" of private capital

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weight and AIDS deaths in the Bronx section of New York City; he stressed the critical role played by improper policy and the use of ecologically informed interventions, particularly essential urban services restoration.

projects that demand economic profit and surrogate social, political or environmental needs. For example, in 2012, The Alameda Central— one of the largest green public spaces in Mexico City (92,000 m2) and the oldest urban park in Latin America[14] was refurbished and modernized by a partnership of Mexico City's institutions[15] and a multinational corporation.

Table 1. IADB Urban Loans 1961–2003

Loan Destination	Loan Amount (Millions, USD dollars)	Distribution Percentage From Total	Number of Loans	Distribution Percentage From Total
Housing	$3,028	3%	65	17.10%
Barrios Development	$1,476.40	5.80%	20	5.30%
Integral Urban Development	$1,429.50	5.60%	13	3.40%
Heritage Preservation	$137.10	0.50%	4	1.10%
Municipal Development	$6,040.70	23.70%	69	18.20%
Urban Transport	$1,139.70	4.50%	14	3.70%
Urban Natural Environment	$1,681.30	6.60%	14	3.70%
Sanitation	$10,574.40	41.50%	181	47.60%
Urban Loans Total	$25,507.50	100%	380	100%
Total Bank Loans	$175,312.60		760	

Source: Inter-American Development Bank, 2004. Compiled and Translated by author.

According to the "Comprehensive Management Plan for the Historic Center of Mexico City 2011-2016" the project included replacing the old paving stone with the finest marble from Santo Tomas (Puebla), new lighting and irrigation systems, a series of robotic fountains, and the displacement of at least 400 peddlers or *vendedores ambulantes*. Octavio Rojas, responsible

[14] Opened for public during the administration of Spanish Viceroy Luis de Velasco 1550-1564 (Wakild, 2007)

[15] Public Space Authority (in Spanish Autoridad del Espacio Público, AEP) at the Ministry of Urban Development and Housing (in spanish Secretaría de Desarrollo Urbano y Vivienda, SEDUVI)

of the social communication department at SEDUVI, informed *Proceso*[16] that the project exceeded $296 million (mxp). That is a figure that was almost four times higher than the original budget of $74 million (mxp) established by SEDUVI. Moreover, Rojas declared that the funds for the project were provided by the Mexican federal government, Mexico City's government, and private investors. However, he did not provide any details on how much money was contributed by each of the parties.

In the "Conservation and Management Plan for the Alameda Central Urban Park" (2012) Mexico City's administration accepted that the lack of a permanent institution responsible for managing the Alameda Central resulted in several disjointed interventions that generated unsuitable activities within the space (including informal/illegal commerce, prostitution and vandalism) that produced a state of serious deterioration. The question that naturally emerges is: Why was Mexico City's administration suddenly concerned about an urban space that was reportedly abandoned and dangerous?

Delgado's (2000: 57) supposition is that within a neoliberal context "nothing in the city is circumstantial, naive or neutral" remains well founded in the light of the process that culminated in a blatant gentrification of the *Centro Historico* in Mexico City. In a photograph (Figure 1) taken during the presentation of the Alameda Central[17], (from left to right) Felipe Leal, former SEDUVI director, Carlos Slim (the richest man on Earth according to Forbes Magazine), and Marcelo Ebrard (former Head of Government of the Federal District) appear together for the inauguration of the project. This image is representative of the current partnership of the city government and Slim's private capital. In August 2001 Slim's

16 A Mexican critical political journal (ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"NNo5E5KT"

17 November, 27, 2012; *Radio Trece Noticias*)

corporation *Grupo Carso* started financing Mexico City's "Plan de Rescate" (Rescue Plan) for downtown Mexico City. According to Walker (2012) the Distrito Federal government was forced to "normalize" activities in the historic center— which included relocating street vendors and revitalizing the area via aggressive transformation of the space. All of it sponsored largely by Slim's private capital.

Picture 2. Alameda Central Project Presentation

Walker accurately described the rationale behind the transformation of downtown's space in the Distrito Federal:

"The normalization of space is being carried out with the goal of preparing the historic district for would-be investors to purchase and live in refurbished palaces and apartments, and to attract direct foreign investment in hotels, restaurants and real state schemes." (p. 171)

Green public space revitalization projects such as The Alameda Central Project are not created with the goal of benefiting society as a whole in the Mexican capital. In fact, the area has been gentrified in favor of the ruling social class that invested private money in the first place. Could it be possible that the intervention of private capital in the urbanization of cities reflects embezzlement of fiscal resources? Citizens are required to pay taxes in order to enable local governments to provide benefits for the collective good; combining these resources with private capital results in an incompatible juxtaposition of goals. Private capital embedded in a neoliberal capitalist logic will always work towards the accumulation of more capital; in contrast the state's goal is to provide social welfare investing collective resources. In an scenario like the one described above, the tragedy is that when public resources are combined with private investments, in a context dominated by a neoliberal logic, public funds' original purpose is replaced by the dominant objective of accumulation, not for collective benefit but for private gain. Perhaps events like these are a sign of local government's incapacity to provide and manage essential urban services.

This is only an example of how green public space is privatized in Mexico City. The overwhelming power of capital dismantles all governmental capabilities to provide amenities in benefit of the entire society ultimately undermining the possibility of social benefits. Overthrowing the state as a governing force, a quintessential goal of neoliberal capitalism, results in the abolition of any possibility of democratic progress of all and perpetuates the entrenchment of private interest over public good. I would argue that Mexico City will not emerge as a progressive democratic city if its government is not prepared to defend and manage its public space.

The influence of neoliberalism on institutions responsible of green public spaces in Mexico City

Latin America has been one of the regions in the world most influenced by foreign capital, particularly in its urban space development. The legacies of colonizer countries are today palpable in the architecture and other characteristics of Latin American cities. Latin American public spaces were not green until the first decade of the 20th century when French and English sanitary policies influenced urban planners, architects, and bourgeois decision makers (Wakild, 2007). Plazas, usually in the form of *explanadas* (esplanades) or *mercados* (markets) were common public spaces in Latin America; none of those places had trees. The quintessential Spanish urban space '*plaza mayor*' or '*plaza de armas*' (the main square) was originally intended to serve a dual purpose. The plaza was a place for summoning citizens to the defense of the city in case of foreign invasion and was also intended to serve as the space that would preserve and improve social, political and economic activities of the urban community. Only after the realization of European governments that green public space was essential for cities to be livable, governments in colonial Latin America started to fund the creation of treed spaces that could benefit urban dwellers living in gray and dirty industrialized areas (Garvin & Brands, 2011). Expanding on how Latin America has been influenced by foreign forces, Ignatieva & Faggi (2009:242) explained: "urban green spaces' [development] show that the urban landscape [in Latin America] is the product of a trans-cultural process and very much influenced by western European colonization". For example, Argentinean territory was colonized during the 16th century onwards. Initially occupied by

the Spanish crown and a population comprised of a majority of European emigrants. Connected with this historical fact, cities in the region started to move towards an Europeanization of their urban architecture. The urbanization processes at the time obeyed an 'emigrants' need to feel at home'(Bernata, 2007). Since the conception of cities like Buenos Aires, it would appear that there was neither appreciation nor concern for the existing natural landscape of Argentina or its residents. And bearing in mind European colonizers had utmost control of the country; there was little incentive or possibility to contest the circumstances. Ironically, public spaces at that time were often used as "displays" for the biodiversity of the zone. Ignatieva & Faggi (2009) also reported that species like Tipa (Tipuana tipu), Jacaranda (Jacaranda mimosifolia), Lapacho (Tabebuia sp.), Palo Borracho (Ceiba speciosa), several exotic palms (e.g. Phoenix canariensis) and native South America palms (e.g. Syagrus romanzoffianum and Butia yatay) were common in garden-like spaces in the plazas. These 'spaces of spectacle ' served as the basis for green public spaces development in Latin America; they incorporated different forms of governance to maintain the ornamental flora and were originally intended to be public. Nevertheless, socio-environmental services were not contemplated as drivers for these places during the *gardenesque* era of public space in Latin America (Müller & Werner, 2010). It was not until 1874 when Argentina's president Domingo Sarmiento, Argentinean ex-ambassador to the USA, opened the *Tres de Febrero* Park (the first urban park in the country "inspired" by Olmsted's Central Park in New York City). In a similar manner, modern Mexican Cities create and manage green public spaces largely influenced by foreign driving forces.

To begin with, the main criterion used to determine if green public spaces in Mexico City are sufficient is based on an international standard set by the United Nations (UN), 16 m^2 of

green public space/habitant. Additionally, the World Health Organization (WHO) recommends cities to have at least 9 m^2 of green public space/habitant. The WHO figure has also been used by Mexican institutions in charge of green public space, presumably due to its proximity to the current figure in the Mexican capital, 5.66 m^2/habitant[18]. As of 2014, to my knowledge, there is no procedure or methodology in Mexico to determine what would be an appropriate number of green public spaces per habitant given the endemic social, economic, political, cultural and environmental conditions of the country and its cities. Mexico has been importing urbanization plans and urban regulations and standards for its entire modern era.

Against this historical context, it is not surprising Mexican institutions' transformations have been either the direct or indirect result of external forces. In the specific cases of green public space creation and management, the main issue in Mexico has been the lack of attention and concern for these urban amenities. Mexican institutions' indifference derives from the fact that other priorities were established by foreign actors that, under a neoliberal agenda, favor economic development above everything else. For example, World Bank (WB) has directed investments to projects that generate economic gain rather than those that would become "a hole it the bank's pocket". Therefore, projects prioritizing capital accumulation have been pervasive in the region. According to the WB official website, "the Bank demonstrated to be a strong partner for Mexico during the global economic recession

[18] Despite the fact that both of these international standards are commonly used in the green public space literature, there is no reference to a specific document that explains the methodology or rationale behind these figures. The World Health Organization issued the work by Bonnefoy & Europe (1997) as the main reference for its position in regards of green public space. There is no explicit allusion to any research that can confirm the origin of these standards.

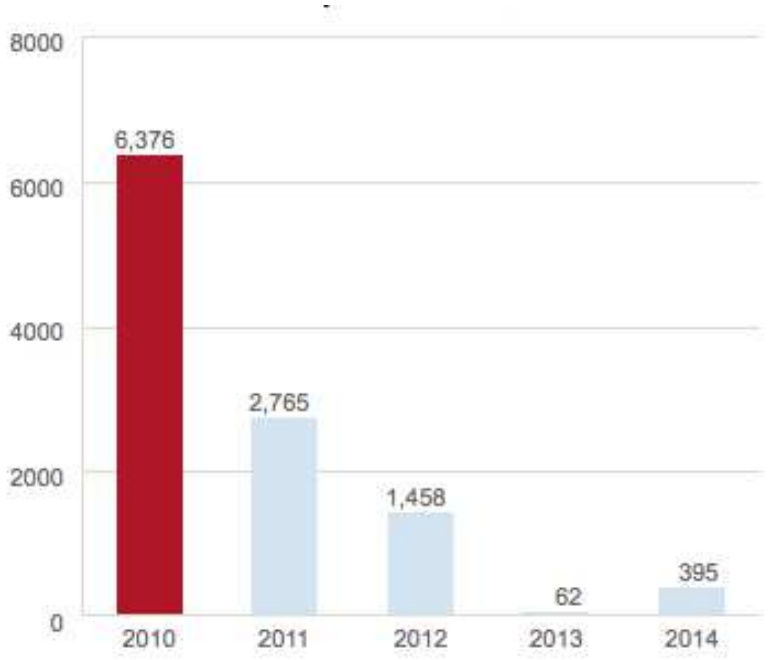
providing unprecedented resources for crisis response programs". In 2010 Mexico established a historical record of $6.367 billion USD in debt owed to the WB (Figure 2). The historical records shows that from January 6, 1949 when the first WB project was approved (to build an Electric Power Development Project [P129553] for a total of $24.1 million) to the latest project of "Market Instruments for Climate Change Mitigation in Mexico" (project P129553, $3.0 million), Mexico has paid an exorbitant total of $7.5 billion USD in interest to the WB (Figure 3). Furthermore, the distribution of resources throughout the years is indicative of the overwhelming intrusion of the WB in the governance of Mexico; the large majority of credits have been used for "central governments' administration projects" (85/ 277 projects). Projects absorbing most monies are related to the environment: Climate Change (37/248 themes) and environmental policies and institutions (35/248 themes) (Figure 3). The most prominent environmental project executed by the WB in Mexico is the Protected Areas System Project (PASP) initiated in 1992 as the Global Environmental Facility (GEF) Funding Project. The project aimed to establish a series of natural protected areas in the country in order to:

"(a) conserve globally important biodiversity in selected protected areas; (b) promote the economic, social and environmental sustainability of productive activities; (c) promote social co-responsibility for conservation; and (d) in general, promote the inclusion of biodiversity conservation and sustainable criteria in development projects and other practices" (World Bank official website, 2014).

As a result of the profuse investment of monetary resources into the management of the Mexican environment by the WB, local administrations lost the capability to engage in a broader conversation regarding their environmental goals. A global, foreign, neoliberal

agenda replaced and suppressed the Mexican role in governing its natural resources. Therefore, the question is, as Bernauer (1995) enquired: can international institutions contribute to successful international collaboration, in some specific meaning of success, and if so, under what conditions?

Figure 1. Mexican Commitments by Fiscal Year (in millions of USD)*



*Amounts include International Bank for Reconstruction and Development (IBRD) and International Development Association (IDA) commitments

Figure 2. World Bank Operations in Mexico by Fiscal Year (in millions of USD)

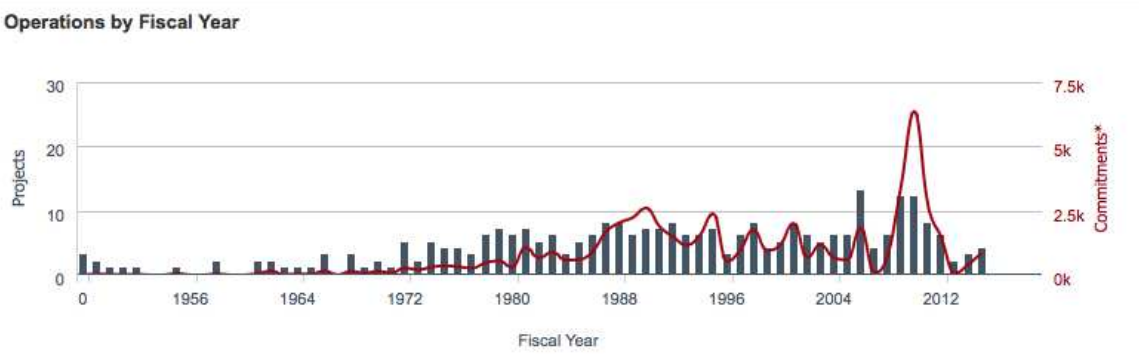
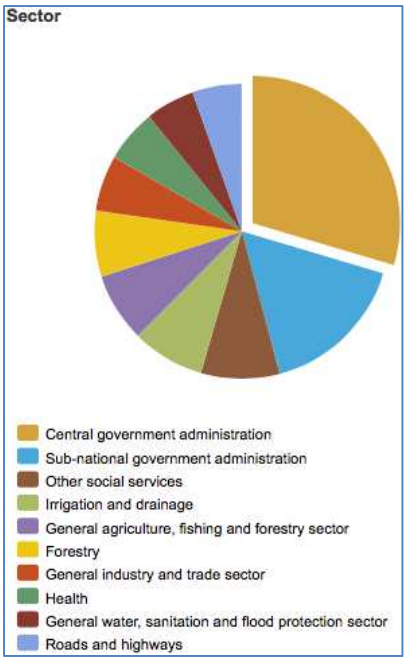
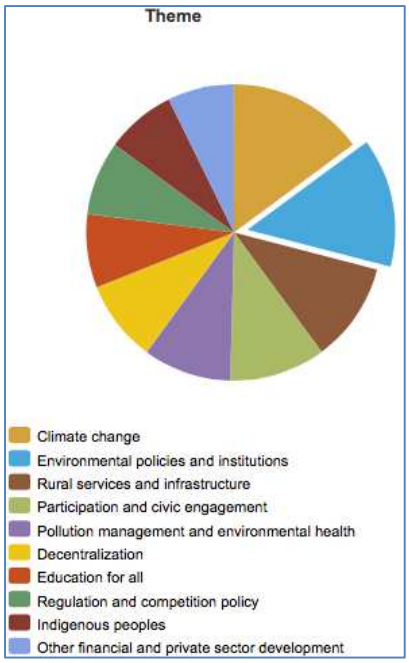


Figure 3 Distributions of World Bank Loans by Sectors and Themes





SECTOR	PROJECTS	%	THEMES	PROJECTS	%
Central Government Administration	82	29.6	Climate Change	37	14.9
Sub National Government Administration	45	16.2	Environmetal Policies and Institutions	35	14.1
Other Social Services	24	8.6	Rural Services and Infrastructure	27	10.8
Irrigation and Drainage	22	7.9	Participarion and Civic Engagement	26	10.4
General Agriculture, Fishing and Forestry Sector	21	7.5	Pollution Management and Evironmental Health	24	9.6
Forestry	20	7.2	Decentralization	22	8.8
General Industry and Trade Sector	17	6.1	Education for All	20	8
Health	16	5.7	Regulation and Competition Policy	20	8
General Water, Sanitation and Flood Protection Sector	15	5.4	Indigenous Peoples	19	7.6
Roads and Highways	15	5.4	Other Financial and Private Sector Development	18	7.2
Source: World Bank. Adapted and translated by author.					

The role of the WB in the transformation of Mexican urban environments is evident. A frequently used instance to demonstrate it is the Metrobus Project[19]. Transportation systems in Mexico City were not only insufficient but also extremely inefficient in their environmental and social goals (Vasconcellos, 2014). Therefore, in order to mitigate

[19] For a detailed technical account of the "Mexico City Insurgentes Bus Rapid Transit System Carbon Finance Project" see http://www.worldbank.org/projects/P082656/mexico-city-insurgentes-bus-rapid-transit-system-carbon-finance-project?lang=en

exorbitant contaminant emissions levels from an estimated four million cars circulating in the capital and to provide an affordable "sustainable" transport alternative for low-income population, the "Mexico City Insurgentes Bus Rapid Transit System Carbon Finance Project" emerged. Its main goal was to reduce local airborne pollutants and greenhouse gas emissions generated by the transport sector in the Metropolitan Area of Mexico City supported through the purchase of resulting greenhouse gas emission reductions in the global emissions market. The Metrobus is the second most used public transport system in Mexico City after the subway. And the environmental and urban goals that the project achieved have been repeated over and over by the WB itself and by a number of governmental officers, including the major of Mexico City since, in fact, this project has had a valuable positive effect within Mexico City (Lámbarry, Trujillo, & Rivas, 2013). Nevertheless, Corbera & Jover (2012: 39) demonstrated that using clean development mechanisms (CDMs) in a market regulated by neoliberal criteria culminates in: "the existence of conflicting public–private partnerships, [due to] the lack of participatory project design approaches and ineffective technology and knowledge-transfer mechanisms […] [thus] limiting the provision of significant environmental and socioeconomic benefits".

The context in which WB projects emerge is illustrative of a system that prevents local institutions from financial and political independence. For the sake of advancing a global agenda, suffused with principles that prioritize economic gain rather than socioenvironmental conditions, WB projects have stimulated institutional dependence (Goldman, 2005). A significant example of this institutional dependence in Mexico is the Ministry for the Environment of Mexico City (in Spanish, *Secretaria del Medio Ambiente del Distrito Federal*, SMADF). The SMADF projects concatenate wealthy private corporations (as

discussed earlier in this chapter) and international financial institutions (i.e. WB or IMF) with local governments in the creation of environmental urban projects, plans and regulations. In the 2013 First Governance Report, the SMADF disclosed a series of partnerships created for most of the projects they initiated from 2008 onwards. For instance, a particularly popular project, indeed helpful for the population of high income areas in Mexico City is the EcoBici Project[20] (Dieleman, 2013; Meneses-Reyes, 2013). According to the report, the EcoBici project was almost entirely privately funded by the WB and other investors such as: *PEMEX, TELMEX, Grupo Modelo, Plaza Parques Polanco, Chocolatería La Suiza, Telcel, Servicio de Administración Tributaria y Plaza de las Estrellas* (SMADF First Governance Report, 2013; p. 29). As explained above, the fundamental issue with private capital investments in governmental projects is the dissociated goals that government and private corporations have. The government has a fiscal system that is supposed to result in the creation of urban infrastructure useful for the social welfare of the entire population; in contrast, private capital investments seek financial returns at the expense of everything else.

This contradictory model imposed in Mexico City has been documented thoroughly and proven to engender cities that are "increasingly central to the reproduction, mutation, and continual reconstitution of neoliberalism itself"(Brenner & Theodore, 2002: 375). Jessop (2002: 21) argued that the promised "trickle- down" effects of liberated market forces in the large majority of East Asia and Latin American developing cities has failed to become a

[20] The EcoBici Project is a "sustainable" urban mobilization program that gave residents in high-income areas of the city an alternative to use bicycles instead of motorized public transport. As reported by Meneses-Reyes (2013) the public bike-sharing system has resulted in socio-environmental segregation patterns given the fact that EcoBici stations were concentrated in "chic" areas of the city "with the purpose of transform the negative perception that residents have of using bicycles as means of transport"(ibid, p.122).

reality. And in contrast the constant "search for a new spatiotemporal fix for neoliberalism [has been resulting in] growing economic polarization and social exclusion". The evident institutionalization of neoliberalism in Mexico has transformed governance of green public spaces into a financial process that perpetuates structural empowerment of foreign capital.

Assuming local governments are in fact receiving resources generated collectively through taxes, what has been done with those resources and why is private capital involvement in the production of urban environmental infrastructure a constant occurrence? As Brenner & Theodore (2002: 375) concluded: "neoliberal strategies [included those intended to tackle environmental issues] severely exacerbate many of the regulatory problems they ostensibly aspire to resolve—such as economic stagnation, unemployment, sociospatial polarization, and uneven development—leading in turn to unpredictable mutations of those very strategies and the institutional spaces in which they are deployed". Evidently, the neoliberal goal of diminishing state's participation in all activities has been systematically achieved in Mexico City via large private capital investments and could lead into a counterproductive override of the state as a driving force within urban contexts.

Systematic acceptance of urban environmental deterioration for the sake of economic gain

According to (Liverman & Vilas, 2006) neoliberal policies, predominantly in the form of free trade agreements, have altered the environmental management of industry, forests, water, agricultural land, and fisheries in Latin America. In the particular case of Mexico, the North American Free Trade Agreement (NAFTA) has originated a series of serious environmental

issues in urban centers (Hufbauer, 2000). NAFTA serves as a distinct illustration of a neoliberal accumulation mechanism that renders pro-environmental regulations untenable (McCarthy, 2004). Moreover, environmental deterioration has been reported to be a constant occurrence within an urban neoliberal framework, the ecology of urban spaces has transformed in order to increase or secure opportunities to perpetuate capital accumulation. Mexico City's government reported in 2000 that the Metropolitan Area of the Valley of Mexico (in Spanish, *Zona Metropolitana del Valle de México*) generated approximately 4,009,629 tons of atmospheric contaminants in 1994. The distribution of emissions for that year was: 58.8% carbon monoxide, 25.7% hydrocarbons, 11.2% particulates, 3.2% nitrogen oxide and 1.1% sulfur dioxide (National Ecology Institute, 2000). Total emissions were identified to be distributed among four primary contaminating sources: transport 75%, energy generation services (electricity and gas) 10%, industry 3% and barren areas (without vegetation or pavement) supplied the remaining 12% (in the form of dust).

Gasoline and gas demand exploded in Mexico City (as NAFTA opened and deregulated markets in Mexico, Canada and the USA), fuels were needed to transport goods and to increase production within large cities. State intervention was modest; the country was in the middle of one of the worst economic crises in its history and all resources, national and international, were invested in other "more urgent issues". Notwithstanding the logic behind the decision-making processes that favored economic recovery, an extremely pressing need at that moment, evidence suggests that the Mexican administrations' approached to environmental issues is, at best, inefficient.

Transport, for instance, was one of the main sources of contamination in Mexico City and

the government acknowledged the situation enforcing the "Hoy no circula" program[21] to prevent the issue to escalate(Garza, 1996). Restricting the use of cars in the city yielded positive results; the concentration of contaminants diminished significantly in the metropolitan area (Lezama, 2000). However, the context in which the program emerged is telling of the environmental negligence of Mexico City's government at the time. De la Luz González & de Modelos (2000) study revealed that from 1993 to 1997 more than 85% of year the capital significantly surpassed the permitted/recommended levels of atmospheric pollution; the authors also compared "critical days"[22] among 5 industrialized cities in the country and the capital had by far the worst ambient air pollution. In addition, the authors documented an increase in the reports of cardiovascular, respiratory and skin diseases in Mexico City during the entire 1990s decade. The *Hoy no circula* program started in 1989; it was planned to be active only during the winter but in 1990 it was instituted as an all-year program. Nevertheless, the unsafe environmental conditions— linked to serious detrimental effects including neuroinflammation, neurodegeneration, and cognition deficits, particularly affecting low socioeconomic infants (see Calderón-Garcidueñas & Torres-Jardón, 2012) endured for at least 10 more years. During this period e, it would appear that the economic crisis simply did not allow resources or time to be seriously invested on any environmental concerns. And more importantly, as a sign of indifference towards the environment, the Mexican government at the local and federal level waited until the very last minute to act,

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21 The literal translation in Spanish is: "today it [your vehicle] does not circulate". Imposing "no-driving days" had a tremendous positive effect as a socio-environmental program intended to improve the air quality of Mexico City.

22 According to the Metropolitan Air Quality index (in Spanish, *Indice Metropolitano de la Calidad del Aire*, IMECA). The IMECA number "involves a transformation of pollutant concentrations to a dimensionless number that indicates the level of contamination in an easy to understand manner. This type of index is used worldwide, the most common being the Pollutant Standard Index (PSI), used by the US government (see Garza (1996) for a detailed explanation of the indicator and its social-environmental value).

when the environmental circumstances threatened the population. This reactive attitude towards the environment, particularly urban environments, could be considered a neoliberal outcome. As argued earlier, the neoliberal city structure favors production for the sake of accumulation and diminishes the importance of everything else.

Several authors have called for an examination of the consequences of neoliberal policies in Latin America(Burdick, Oxhorn, & Roberts, 2009; Gwynne & Kay, 2000; Morton, 2003a; Snyder, 2001b; Wylde, 2012); they highlighted the fact that since the establishment of these policies, local governments knew that "adjustments[23]" would be a "bitter pill" that could result in a "short- term pain for long-term gain" (Weyland, 2004). Regardless of some author's coy attitude in addressing the actual benefits or disservices that neoliberalism brought to Latin America as a region (i.e. Liverman & Vilas, 2006), there is a general consensus within Latin American academic research that neoliberalism has been, in fact, an obstacle for the region's comprehensive development and an excuse for exploitation of natural resources and workers (Delgado, 1997).

The emergence of industrial parks during the 1990s confirms that the neoliberal "optimization" (i.e. commodification) of urban spaces has been another example of a high toll Mexican urban environments has been forced to pay in the name of economic development. INEGI reported in 1998 that there were 381 industrial parks in the entire country, most of them located within or in the fringe of large cities; by 2014 there exists 550 in the country and 41 new in the Metropolitan Area of the Valley of Mexico (National System for the Promotion of Industrial Parks; in Spanish, *Sistema Mexicano de Promoción de*

[23] Structural adjustment programs in Mexico, often times under the neoliberal guidance of international financial institutions, have redefined social policy and the role of markets in the provision of basic social services (Laurell, 2000).

Parques Industriales, 2014). In sharp contrast, there has been only one new sizable urban park constructed in the metropolitan area, the Bicentenario Park opened November 7th, 2010.

Conclusion

It is widely accepted within the Mexican economic, political and social science literature that during 1990s , neoliberalism was institutionalized in Mexico (Babb, 2001; Soederberg, 2005). During the late 1990 neoliberal political economic policy yielded, in its initial phase, a transformation of the "rationale for action" that guided decision-making processes within the Mexican government. Delgado (1995) explained that as the neoliberal political economy was weakening the state and social welfare considerations were superseded by economic goals. In other words, the neoliberal political agenda imposed in Mexico eroded the political and social approach for governing and managing cities by allowing "the market" to drive the optimization of economic resources (Guill ZORomo, 1997).

Moreover, one of the initial but most disruptive effects of neoliberal policy on the production of Latin American urban spaces was the focus on advancing the task of "retooling the state" in order to construct cities capable to be incorporated into a larger global network of accumulation hubs(Graefe, 2005). This leading point in the neoliberal agenda has resulted in a systematic intervention of international financial institutions in the governance of cities. Concomitantly, local administrations' incapability to advance urban environmental projects and policy has been exacerbated after the restrictive financial dependence that started developing during the 1990s, the "free trade decade"(McCarthy, 2004).

In the particular case of Mexico City's urban environment, the effects of neoliberalism have been, in general, harmful for the city and the majority of its dwellers. The privatization of green public spaces is an illustrative instance of the influence that neoliberalism has on the production of urban spaces. Urban gentrification, typically embedded in the context of Latin American neoliberalism, has become ubiquitous in the region and its effects have remained unchanging: socio-environmental segregation, environmental degradation (in favor of capital accumulation) and the entrenchment of an unmovable set of guidelines that prioritize financial gain above all other needs. Moreover, the influence of international financial institutions such as the IMF and WB has resulted in historical governance dependence in Mexico. These international institutions have largely subsidized most projects regarding environmental issues in Mexican Cities. As a consequence, economic development rules and objectives have been imposed to local administrations following financial neoliberal criteria. Thus, green public space deficit and privatization in Mexico City exist as an externality of a structural conditioning of cities to serve as hubs for the production, circulation and consumption of goods that lead to capital accumulation. The following chapter will address in detail the quantitative and qualitative dimensions of the impact of neoliberalism in Mexico City and its green public spaces. As described in this chapter, neoliberal policies have been having a profound impact on the production of space in Mexico City and have also become the main driver of a series of environmental injustices that will be analyzed in the following lines.

CHAPTER 3

UNEVEN DISTRIBUTION AND ACCESS TO GREEN PUBLIC SPACE IN MEXICO CITY AS AN ENVIRONMENTAL INJUSTICE CASE

Introduction

This chapter addresses the quantitative and qualitative dimensions of green public space (GPS) in Mexico City as a case of environmental injustice. The chapter begins with a review of relevant studies on GPS distribution and access in order to establish a theoretical framework, methodology and a background for the analysis presented.

The quantitative account of GPSs in Mexico City is presented based on methodologies previously proposed by Boone et al. (2009) and Talen (2010). Using data provided by the Environment and Land Management Agency for the Federal District (in Spanish *Procuraduría Ambiental y del Ordenamiento Territorial del Distrito Federal,* PAOT) and INEGI, I created a series of maps to show the uneven distribution of GPSs in the Distrito Federal; GPS maps presented in this work comprise only a selection of features included in data sets provided by governmental institutions due to the fact that official maps do not follow methodological criteria established in the Environmental Statement for the Federal District (NADF-006-RNAT-2004). The main difference between previous maps and those offered in this work is the standards used to determine what *is* and what *is not* GPS. According to Mexico City Environmental Law, GPSs should be in fact public. I investigated all spaces accounted as GPSs and contacted or visited their locations to ensure the actual public character of each site. Whereas official documents considered airports, military stations, prisons and penitentiaries, private universities gardens, cemeteries and even shopping malls as GPSs, this analysis focused only on spaces open to the general public for the purpose of leisure,

physical activity or any other not for profit activities.

In addition, the following presents the basic socio-demographic "deeply differentiated" characteristics of Mexico City's population (Aguilar et al., 2003) vis-à-vis GPS. Given that the most common form of GPS in Mexico City is parks (Wakild, 2007), a suit of variables proposed by the Population National Commission (in Spanish, *Comisión Nacional de Población*, CONAPO) were integrated in the creation of a Park Need Index (PNI). After comparing the wealthiest and most marginal boroughs in Mexico City, it is evident that the socio-economic characteristics of areas lacking parks in the city are indicative of a classic case of environmental injustice. Furthermore, data on green space provided by Mexico City's official websites and recent academic publications were reviewed. Evidence shows that GPS distribution is biased against young population with low levels of education and high levels of poverty living in densely populated areas.

Finally, the work of Emily Wakild (2007) on urban parks in Mexico City during the *Porfiriato*[24] was reviewed as a historical foundation for my own research. Wakild's research traces the historical events and actors fundamental for the creation and development of GPSs in Mexico City. Building upon her work, I describe three parks in Mexico City as case studies: *Chapultepec* Park, *Bicentenario* Park and *Cuahtemoc* Park. My objective is to explain the procedural dimension of the current uneven distribution of GPSs, a significant component of environmental injustices in Mexico City. After tracing the historical evolution of the case studies presented, I will argue that institutional legacies on the landscape have resulted in segregation of marginal populations away from GPSs. The very influential role of the

[24] Porfirio Diaz served seven terms as President of Mexico, totaling nearly three decades - one month in 1876, then from 1877 to 1880, and finally from 1884 until he was overthrown in 1911.

political economy in Mexico City will be analyzed within the context of "revitalization strategies". *Bicentenario* Park and *Cuahtemoc* Park cases are also discussed with the objective of identifying the fundamental characteristics of Mexico City's political ecology.

Green Public Space and Environmental Injustice in The City

The complex production of urban environments and landscapes comprises the distinctive political ecology of a city. As proposed by Marxist political ecologists, neoliberal capitalism is responsible for creating tensions between the production and consumption of urban space. These tensions—occurring in a context of uneven power relations— are much more complicated to navigate and contest by low socioeconomic status groups, mostly minorities (Pulido, 1996a, 2000). Many instances of social and environmental injustices in the form of uneven distribution or access to green public space have been studied thoroughly for the past ten years in different contexts and scales.

Boone et al., (2009) presented one of the most complete studies of urban parks in Baltimore, MD. The main objective of their work was to examine the distribution of parks as a socio-environmental injustice. For the geographical (spatial) dimension of their research, they presented a "novel park service area approach that uses Thiessen polygons and dasymetric reapportioning of census data to measure potential park congestion as an equity outcome measure" (p. 767). They also developed a potential park congestion indicator (PPC), defined as "the number of people per park acre (PPA) in a given park service area (PSA) if every resident were to use the closest park" (p. 772). The PPC indicator was useful to reveal inequities beyond the traditional approach of Park Service Area (PSA) assessment— that focuses only on distance as a proxy for use and access— as it incorporates population density in relation to the spatial distribution of parks. On the other hand, and essential for

my own work, is the social component of their research which included a historical-process analysis that investigated the drivers that generated park distribution and access patterns. Boone et al. (2009: 783) concluded that "the story of parks in Baltimore illuminates the complex interactions between race and [urban] planning where efforts to segregate the city fueled fear and ignorance, and consequently white and later middle-class black flight to the suburbs, along with population and economic decline in the core […] Baltimore is now living and struggling with the legacies of segregation and environmental injustice". This statement provides a bold argument for examining the social production of environmental injustices without fetishizing spatial conditions alone. The authors acknowledged and stressed that environmental inequities within Baltimore emerged through complex historical processes intertwining race, gender and socioeconomic status.

Sister et al., (2009: 229) also discussed racial inequities to park access using "Thiessen polygons to delineate a service area for each park, and potential park congestion or 'pressure' in each park service area". The main objective in their work was to assess the spatial distribution of parks as a "pragmatic way to redress existing disparities in park access"(p. 229). Their results showed that "low-income groups and most people of color are relegated to older, high-density and lower-cost neighborhoods with fewer available spaces for recreation and nature appreciation"(p. 243). The author's goal was to develop "decision-support tools" to improve park policies, which could generate better funding allocation based on democratic and equitable principles. This approach, assessing spatial distribution, is very common within literature regarding green public space. Another useful illustration of this type of distributional justice research is the work of Nicholls (2001) who emphasized the "inherently spatial nature of the concepts of access and equity [to parks]" (p. 201). Her results showed, for example, that in Bryan, Texas, "less than 40% of residents have good

access to any form of everyday open space, with only 12% being able to reach a neighborhood park within the distance specified" (p. 216). Regardless of the fact that both studies are methodologically relevant, neither Nichols or Sister et al. provided an argument to explain how equity (and by extension environmental justice) can be assessed based solely on spatial distribution patterns. The authors do not inquire as to what the processes that led to these outcomes are.

A final example of interdisciplinary research that analyzed environmental injustice within complex socio-ecological relations and green public space is Pincetl & Gearin's (2005) work in Los Angeles, California. Their research was divided in two parts, one that considered the geographical and physical dimensions of parks (green public space uneven distribution) and another that investigated the social construction of parks (green public space uneven access). The main objective of their work was to test the hypothesis that "green infrastructure provides a venue to address environmental inequalities in densely populated and socio-economically diverse cities such as Los Angeles" (Heynen, 2003 in Pincetl & Gearin, 2005; p. 366). To do so, they started presenting evidence for "tangible" environmental benefits resulting from green public spaces. CITYgreen[25] was used to calculate a number of environmental benefits such as air pollution reduction (including the removal of five pollutants: ozone, pm10, sulfur dioxide, nitrous dioxides and carbon dioxide), urban heat island amelioration, carbon sequestration, energy savings of shade trees and storm water catchment. A number of significant findings resulted from their application of CITYgreen:

[25] A geographic information system developed by the nonprofit organization American Forests (American Forests, 1999), that has been used to quantify the economic costs of ecosystem function losses resulting from increased urbanization at the urban fringe (Miller, 1995)" in Pincetl and Gearing (2005, p. 369). This software is no longer available for the public nor can it be purchased.

calculations indicated average benefits at $275 per cubic foot of potential avoided storm water infrastructure costs, a reduction of residential energy bills by 10–20%, and measurable air pollution mitigation as a result of the increased tree canopy (previously explored in Pincetl et al., 2003 and replicated on Longcore, Li, & Wilson, 2004) proving that in fact environmental services provided by green public space, distributed among marginalized populations, can ameliorate existing unequally distributed environmental burdens. Moreover, a significant but peripheral component of Pincetl and Gearing's work is that—like other authors studying green public space in the USA (Brownlow, 2006; Heynen, 2006a)— they examined current patterns of environmental services unequal distribution produced by years of green public space social, economic and cultural development. Setting the historical, geographical, and institutional context in which urban green space emerges is what allowed these authors to analyze the "changing notions of green space, the roles of local governments, recreation and leisure and the concept of nature in the city" (Pincetl & Gearin, 2005).

The Quantitative dimension of Green Public Space in Mexico City

According to the Mexico City Inventory of Green Pubic Space (in Spanish *Inventario de Areas Verdes del Distrito Federal*) created by the Directorate of Urban Reforestation, Parks and Bike Paths (in Spanish, *Dirección de Reforestación Urbana, Parques y Ciclovías*), Mexico City has a distinctly uneven distribution of urban green areas across different boroughs. For example, from the total 128.8 km2 of green areas (km2 of ga) available in the *Distrito Federal*, the boroughs of *Alvaro Obregon* (24.59 km2 of ga), *Coyoacan* (20.13 km2 of ga) and *Iztapalapa* (18.32 km2 of ga) comprise 48.9% of all green areas available in the city while boroughs such as *Benito Juarez* (1.19 km2 of ga), *Cuauhtemoc* (1.81 km2 of ga) and *Magdalena Contreras* (1.82

km2 of ga) account only for 3.7% of the total green space available (Table 1). These figures include all green areas, private and public[26], protected and unused; everything that is green, including bushes and grass in random areas of the city, is considered green space. Based on EJ theory, it is clear that there exist a pronounced case of uneven and inequitable distribution of green space in Mexico City.

The method(s) used and the results obtained in the Mexico City Inventory of Green Pubic Space—a document created in collaboration between Mexico City's Ministry of Environment and INEGI— are not discussed in detail in any official reports and there is no information about the responsible author(s) of the study nor well-defined explanations regarding the process to obtain these numbers. Nevertheless, this is the only official and unofficial source of information regarding green space distribution for the city. It is important to highlight this fact because in 2001— supposedly considering recommendations made by scholars and international institutions— the Federal District Environmental Law which governs all environmental affairs in the city, was modified to require each of the sixteen boroughs to produce an Annual Inventory of Urban Green Areas. Regardless of this fact, there is only one Annual Inventory of Urban Green Areas (2002) available. I reached this conclusion after a thorough online research of the past eleven years, which disclosed further studies have not been made. There is only one map of green areas per habitant— discussed later in this chapter— created by the Environment and Land Management Agency for the Federal District (2009) that can be used as a revised reference. This seems to indicate that the institutions responsible for the management of green public areas have neglected the

[26] The figures presented are inclusive of all "green" in Mexico City but details regarding access—contingent upon private and public property laws— are neglected, thus obscuring the actual distribution of available green space among city dwellers.

basic responsibility of quantifying the number of km^2 of available green space on an annual basis as required by law. Basic questions regarding green public space in Mexico City—given the lack of up to date information— are very difficult to answer. Some of these questions are:

1) What is the exact number of km^2 of green space available today?

2) Where exactly are public green spaces located?

3) Is green public space unequally distributed and in what ways?

Table 2. Mexico's City Green Urban Areas by Borough (INEGI, 2002).

Borough	Area km2 (*)	Total Green Areas Km2	Green Areas % sup. Borough	% Forested Areas	% Zones with grass and bushes	Green Areas per habitant M2	Forested Zones per habitant M2	Population % (Year 2000)
Álvaro Obregón	61.12	24.59	40.2	64.5	35.5	35.8	23.1	8.1
Azcapotzalco	33.51	4.28	12.8	54.7	45.3	9.7	5.3	5.2
Benito Juárez	26.51	1.19	4.5	99.0	1.0	3.3	3.3	4.2
Coyoacán	54.01	20.13	37.3	76.7	23.3	31.4	24.1	7.5
Cuajimalpa	15.08	5.55	36.8	46.4	53.6	36.7	17.0	1.8
Cuauhtémoc	32.67	1.81	5.5	74.0	26.0	3.5	2.6	6.1
G. A. Madero	87.29	14.26	16.3	47.3	52.7	11.5	5.4	14.5
Iztacalco	23.12	2.25	9.7	54.7	45.3	5.5	3.0	4.8
Iztapalapa	113.37	18.32	16.2	27.1	72.9	10.3	2.8	20.8
Mag. Contreras	14.08	1.82	16.2	27.1	72.9	10.3	2.8	20.8
Miguel Hidalgo	47.69	8.89	18.6	57.3	42.7	25.2	5.7	2.6
Tláhuac	19.17	2.27	11.8	4.4	95.6	7.5	0.3	3.6
Tlalpan	48.29	11.80	24.4	88.9	11.1	20.3	18.0	6.8
V. Carranza	33.87	5.23	15.4	23.5	76.5	11.3	2.7	5.4
Xochimilco	22.90	5.89	25.7	60.8	39.2	15.9	9.7	4.3
Distrito Federal	632.66	128.28	20.4	55.9	44.1	15.1	8.4	100
Note: *Milpa Alta* is not considered due to the fact that it is located entirely within "Conservation Land"								

A graphic depiction of this table in the form of a map was created by Rivas Torres (2005). The author incorporated 4 different conventions for the map: 1) green for trees, 2) yellow for grass and bushes, 3) pink for conservation land and 4) white to designate the political division for each borough in Mexico City. According to the map, Mexico City has a total area of urban green space of 10672 ha (106.72 km^2)— 20.2% less than the 2002 figure of 128.28 km2 offered by INEGI (in Table 1). Rivas Torres divided urban green areas in two different categories, one of "forested areas" with trees and the other consisting of "grass and bushes only". It is clear that there is a concentration of green areas in the southwest section of Mexico City and that the center and northwest are significantly less green (Map 1).

In 2009 the Environment and Land Management Agency for the Federal District (in Spanish *Procuraduría Ambiental y del Ordenamiento Territorial del Distrito Federal*) presented a series of maps showing different aspects of environmental conditions in Mexico City including environmental risks, land uses, irregular settlements locations and green areas distribution per habitant among others[27]. Drawing from data provided by the INEGI and PAOT, using QGiS 2.4 (spatial analysis software), I created a new map of green public space distribution per habitant per neighborhood. INEGI provided GPS data in the form of polygons including 15 urban features. However, not all of them represented GPS. For example, cemeteries, shopping centers, health care centers, some bodies of water[28], private edifications with green spaces, schools, markets, government palaces, electric substations and temples are not open to the general public. Therefore, those features were not included in my analysis.

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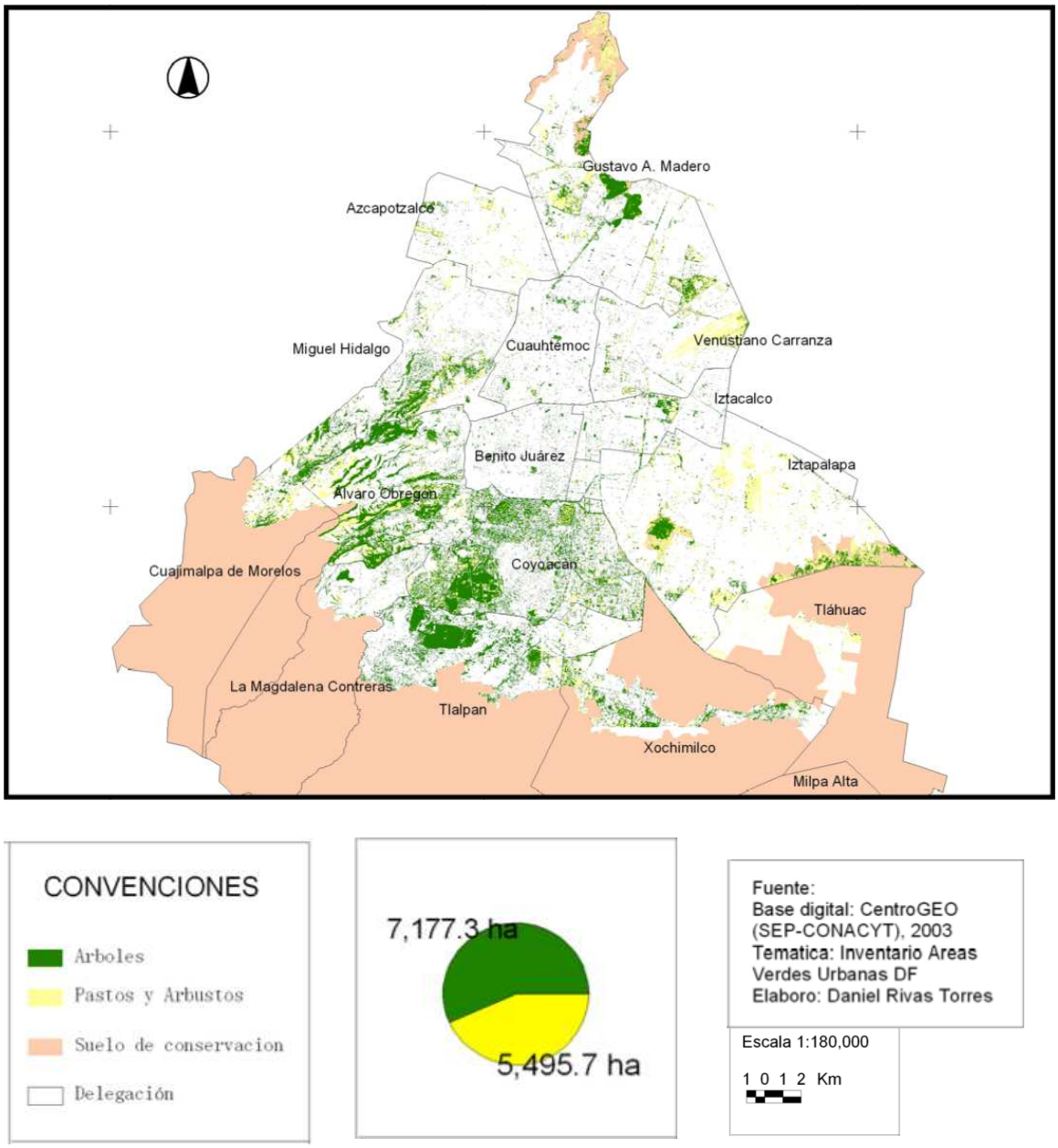
[27] Maps available at http://www.paot.org.mx/contenidos/paot_docs/GEO_DATO2/menu.php

[28] According to INEGI, 43 out of 45 rivers originally located in Mexico City have been piped. Infrastructure nearby non-piped areas of rivers and lakes is federal property and access is restricted (Tortolero, 2000). Lakes and Ponds located inside public parks or conservation land are public. For this analysis, if bodies of water were located inside parks they were geo-referenced as parks.

Moreover, some sports facilities and other recreational facilities were included after I corroborated their public status[29].

Map 2. Urban Green Areas of the Federal District, Mexico City (Rivas Torres, 2005).



Given the fact that a substantial number of features were not included in the creation of this map, there exist a noticeable difference between the official maps by local governments and

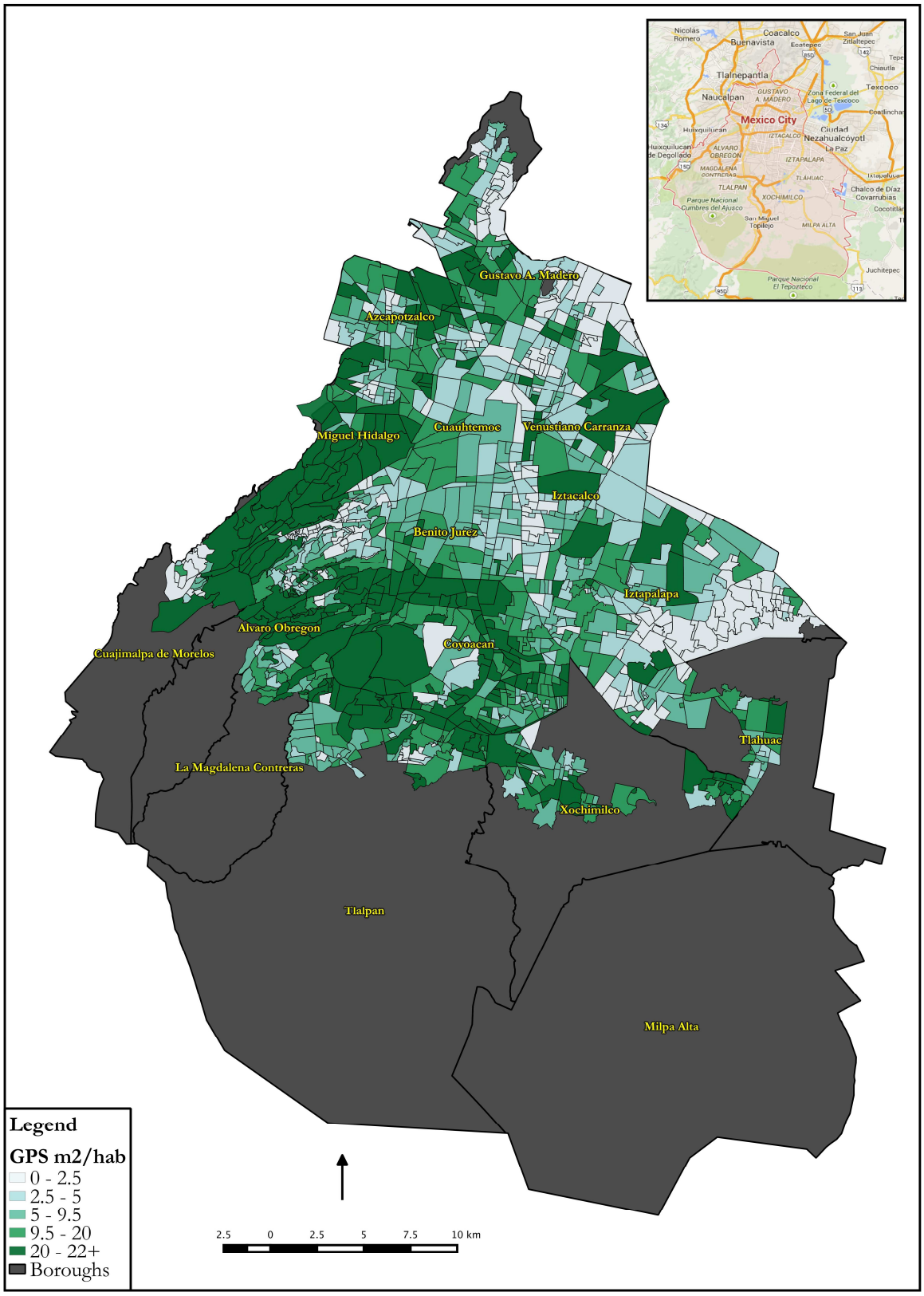
[29] I visited the sites or called their administrative offices asking for this specific information.

mine regarding green public space distribution. However, the original and most significant attributes of the map remain the same: the green area per capita map shows five different tonalities of green ranging from the lowest to the highest availability of green space; the lightest green represents the areas with less m2 of green space per resident (0-2.5 m2/hab) compared to the darker green showing the areas with higher per capita green space (20-22 or more). This map is also representative of the unequal distribution of green public space among boroughs in Mexico City as it shows green space concentration in the southwest and center. East areas of the city are disproportionally "gray" or lacking green space (Map 2). The category of urban green area is defined in the Environmental Statement for the Federal District (NADF-006-RNAT-2004) as:

"Any surface covered with natural or induced vegetation, located on public property of the Federal District and referred to in any of the categories provided in Article 87 of the Environmental Law of the Federal District. This category includes parks, gardens, garden or tree-lined squares, planters, plant cover any areas on public roads (roundabouts, medians, trees lining), avenues and groves, headlands, mountains, hills, natural grasslands and rural areas for forestry production or ecotourism services, canyons and areas of aquifer recharge" (Environmental Law of the Federal District, 2000).

This overly generous and clearly lax definition of GPSs by Mexico City's governments serves to overstate the actual amount of GPS available in the city. Figures presented by previous administrations did account for private spaces, regardless of the contradictory official definition of GPS. As mentioned earlier, administrations have been using international standards to measure gains on GPS provision. For the Mexican capital governments it has been of utter importance to project a progressive image. Nevertheless Map 2 shows that the large majority of Mexico City's boroughs contain less than 9 m^2/hab, the recommended international standard.

Map 3 Green Public Space Distribution in the *Distrito Federal* per Colony



The current administration is following a questionable criterion by considering spaces with less than 160 m^2 of vegetated areas established as the minimum for a urban space to be considered a GPS— according to the Article 88 bis of the Mexico City Environmental Law (GDF, 2002). Despite the fact that urban environmental governance in Mexico has shown positive advances since the late 1980s (Schteingart, 1989), current official quantitative reports on GPS provision in Mexico City are instances of local administrations misrepresenting facts to the public by making up numbers that do not align with terms defined by local laws. Airports, military stations, prisons and penitentiaries, private university gardens, cemeteries and even shopping malls were considered GPSs in Mexico City reports whereas they are not included in Map 2 (see Table 2). Rivas Torres (2005) reported that more than 44% of the spaces considered as GPS were only "grassed", agricultural areas or not at all vegetated public spaces.

Table 3. Green public spaces features account for distribution analysis.

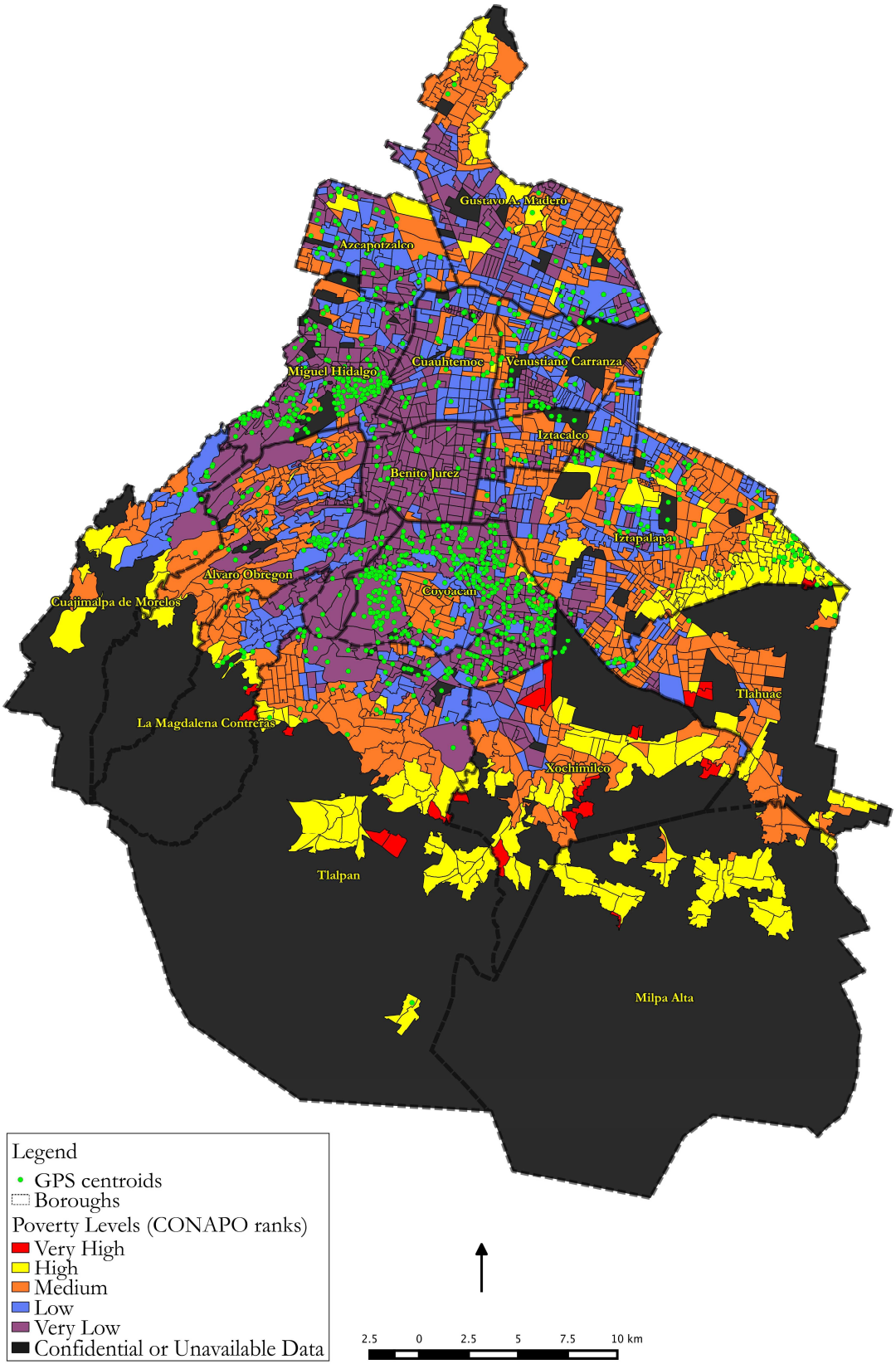
Green Public Spaces			
Feature number	Name	Type	Accounted for analysis
1	Median strip	Public	Yes
2	Cemetery	Private	No
3	Shopping center	Private	No
4	Health care center	Private	No
5	Edification	Private	No
6	School	Private	No
7	Sports facilities	Private/Public	In some instances
8	Recreational facilities	Private/Public	In some instances
9	Market	Private	No
10	Government palace	State Owned/Private	No
11	Plazas	Public	Yes
12	Green Area	Public	Yes
13	Electric substation	State Owned/Private	No
14	Water	State Owned/Private	No
15	Temple	Private	No
Source: INEGI, 2001. Compilation and categorization by author.			

In addition to the distribution of green space among boroughs in the city, it is important to identify the specific socio-demographic attributes of those areas without green areas. Following the sociospatial research by Mier y Terán et al. (2012) in Mexico City regarding urban poverty, residential segregation and public space, I created a map using the Population National Commission (in Spanish, Comisión Nacional de Población, CONAPO) ranks[30] and identified the neighborhoods (in Spanish, *colonias*) with medium-high (yellow), high (red) and very high (dark red) poverty levels in Mexico City (Map 3). If compared to the previous map showing the distribution of green areas it is clear that the southeast part of the city is not only an area with less green space but also the one with the highest levels of poverty. The borough of *Iztapalapa* shows particularly high levels of poverty that have been associated with insufficient or non-existent basic urban infrastructure, substandard housing, high levels of unemployment or underemployment and social stigmatization (Mier y Terán et al., 2012). Furthermore, as showed in map 3, *Iztapalapa* also shows a very low concentration of green public spaces[31], an essential urban amenity.

[30] CONAPO ranks refer to a function that accounts for four different socioeconomic variables: education levels, access to medical services, housing conditions (i.e. owning or leasing properties, number of inhabitants per residence) and access to residential services such as sewer and potable water. For a detail description of CONAPO's methodology see http://www.conapo.gob.mx/es/CONAPO/Capitulo_1_Marginacion_Urbana_2010

[31] PAOT's and INEGI's spatial data contains GPS features in the form of polygons. Therefore, using QGIS I calculated the centroids of those polygons in order to transform them into points. Furthermore, I used the "points in polygons" tool to calculate an exact number of points per census block. I used this number to generate the park need index as well.

Map 4. Poverty levels and GPS centroids per Colony



A Socio-environmental analysis of Green Public Spaces in Mexico City

The concentration of green public spaces in Mexico City is evident. Nevertheless, a detailed account of the socio-economic characteristics of those areas in the city enduring the lowest levels of GPS concentration was lacking. Therefore, using census data, INEGI's GPS data and CONAPO rankings I created a park need index (PNI). I compared the two boroughs with highest and lower levels of PNI, *Miguel Hidalgo* and *Iztapalapa* respectively. I decided to use the PNI as a proxy for urban socioenvironmental injustice. It is important to highlight that, as reported by Kitchen (2012), parks are not necessarily an amenity for all dwellers as their characteristics can differ significantly. Furthermore, I acknowledge that lack of parks is not as adverse as lack of potable water. However, based on decades of research establishing the importance of social and environmental services provided by green public spaces, I argue that biased provision of urban amenities against marginal populations is a symptom of a structural condition that restricts pauperized urban dwellers from inhabiting livable urban spaces.

Needs-based assessments of parks have been conducted in the past aiming to address issues of equity rather than equality[32] (Talen, 2010). Following Talen's (ibid) and Boone's et al. (2009) research, I created a park need index incorporating socio-economic and

[32] According to Oliffe & Greaves (2011), equity involves trying to understand and provide people with what they require to fulfill their necessities. In contrast, equality aims to guarantee that everyone gets the same things in order to fulfill their necessities. Furthermore, according to the Canadian Sex- and gender-based analysis (SGBA) research center: "Like equity, equality promotes fairness and justice, but it can only work if everyone starts from the same place and needs the same things". Given that Mexico is a deeply differentiated country, equitable policies would work better, particularly in the case of provision of urban amenities.

environmental characteristics of different areas in the city (Table 2). Using Jenks natural breaks, variables were divided into five classes and then each census tract was assigned a corresponding value of 1 (very high need) to 5 (very low need). Map 3 shows the summed values of all variables for the entire *Distrito Federal*. Results show that there is a distinct lack of parks in the large majority of Mexico City's boroughs given the proposed variables. Furthermore, it is evident that some boroughs such as *Coyoacan* and *Miguel Hidalgo*— both with a very low levels of poverty— are currently enjoying a higher number of parks. In fact, 77% of census tracts in Mexico City presented a very high need for parks and only 2% a very low need for parks given the used criteria for the analysis. In the case of "very low need tracts" 1005 were concentrated in areas with very low poverty levels. Census tracts were used because CONAPO's and PAOT's data sets are not available at the block group level.

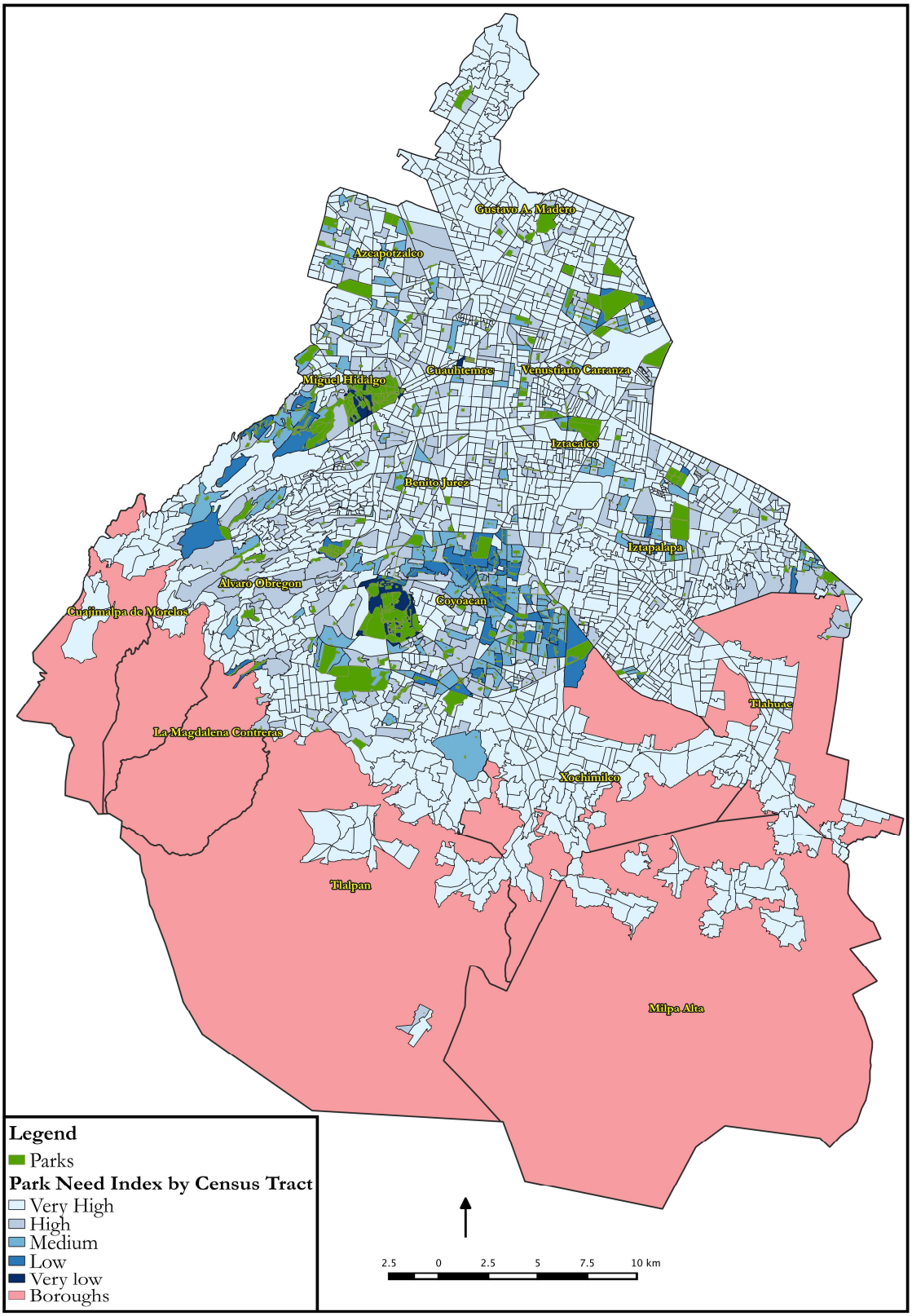
Table 4. Data Included to calculate Park Need Index (PNI)

Park Need Index			
CONAPO			
Education	Health	Housing	Goods
1. % Population 6-14 years not attending school 2. % Population aged 15 years or more without complete basic education	1. % Population without medical health services 2. % Children deceased within women of 15-49 years old	1. % Inhabited housings without drain connected to the public network or septic tank 2. % Private dwellings inhabited without toilet with water connection 3. % Inhabited housings without piped water inside the dwelling 4. % Private dwellings inhabited with floor 5. % Inhabited housings with some level of overcrowding	1. % Private dwellings without refrigerator
PAOT			
Green Public Space m^2/habitant		Green Public Space centroids	
INEGI			
Population Density		Household Income	

Table. 5 Park need index distribution by census tracts

Park Need Index by Census Tract					
Total Tracts	Very High	High	Medium	Low	Very Low
2431	1879	348	99	51	54

Map 5. Park Need index by census tract for Mexico City and existing parks



The contrasting distribution of parks in Mexico City is noticeable in an overall sense. As a further matter, if addressed in detail, the socioeconomic characteristics of boroughs are correlated to a lack of parks. In areas with low income, less educated and younger people parks are scant. In contrast wealthy, older and more educated populations have numerous parks available but that are rarely used. Heynen (2006b:12) indicated that: "As with other housing amenities, households with higher incomes tend to have greater disposable resources that can be used for tree planting and maintenance. Hence, upper income residences tend to have more, and better maintained, canopy cover on their properties".

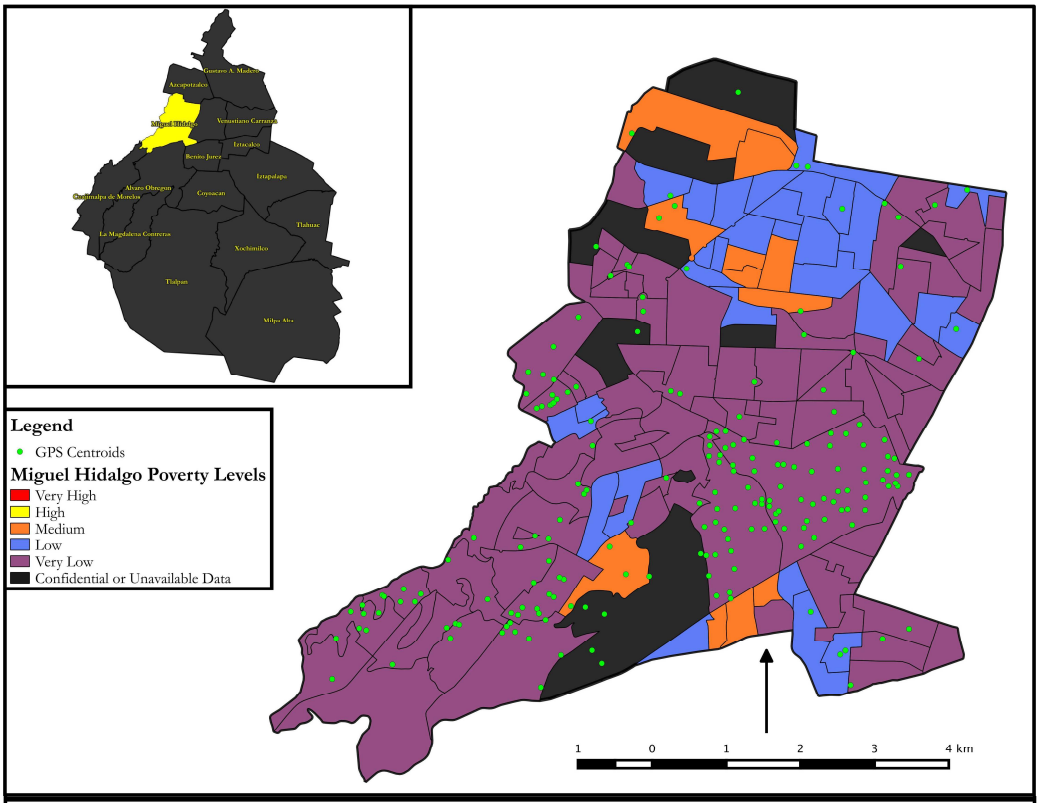
Regardless of the current distribution of green public spaces, there is an absence of academic and political conversations regarding the injustices of disproportionate allocation of green spaces to an small population group in Mexican urban contexts. It is rather urgent to determine the guidelines that will inform the creation of parks in Mexico City based on equity over equality criteria. Equity in the distribution of GPSs has been discussed in the past (Nicholls, 2001) and regardless of its clearly subjective nature, "open to multiple, sometimes competing, interpretations" (Symons, 1971: 59) there exists a standard adoption of the concept in urban contexts (Wicks & Crompton, 1986). Nicholls (2001:204) explained:

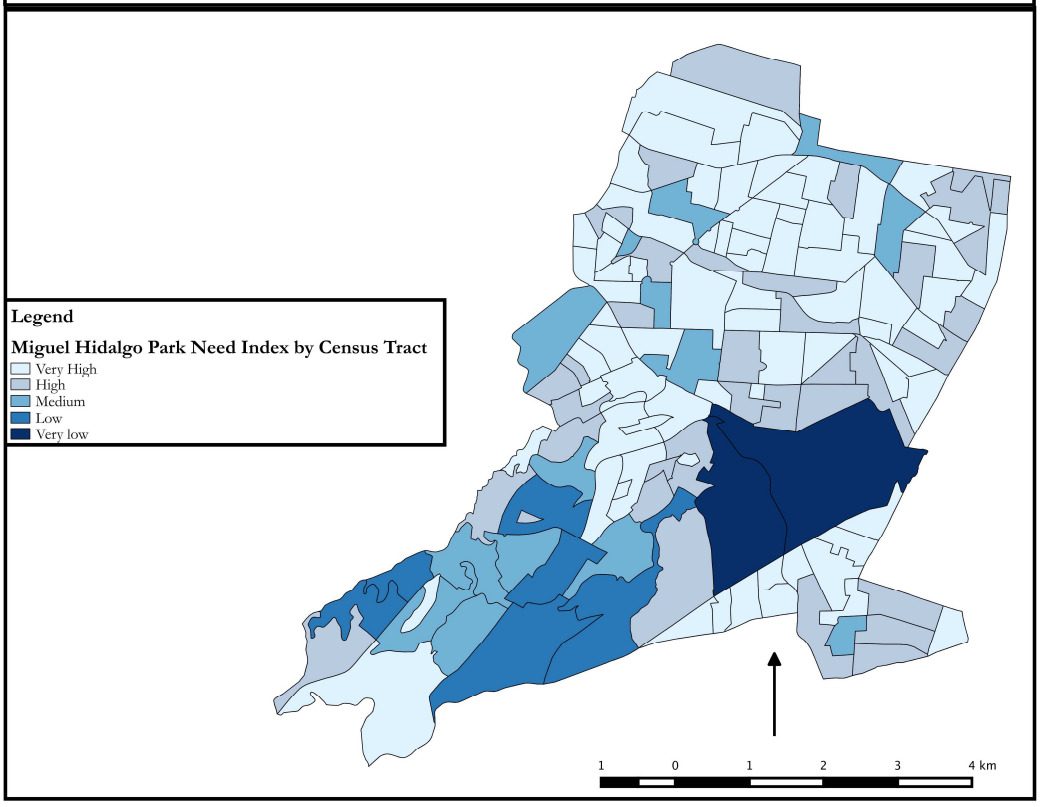
"A compensatory, or need-based, approach to equity implies, as Lucy (1981; p. 448) notes, 'that unequals should be treated un- equally'. Thus, disadvantaged residents or areas are awarded extra increments of resources so as to provide these groups with opportunities that they might not otherwise have had."

Therefore, in order to redistribute GPSs in a compensatory manner it is important to assess

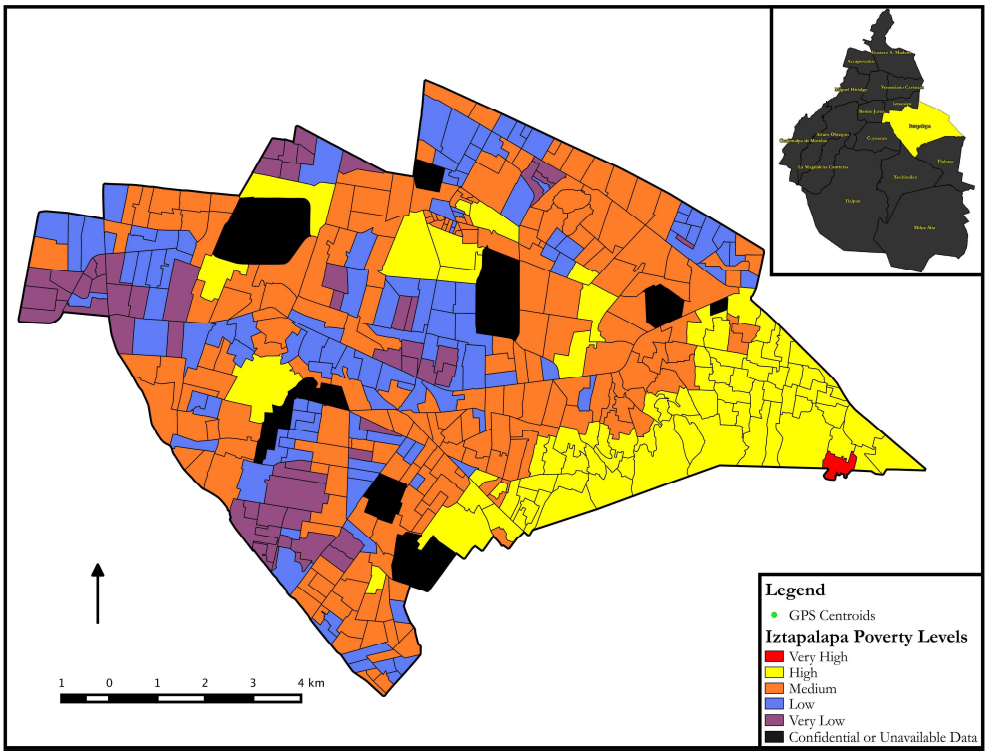
'Who gets what?' or, normatively, 'Who ought to get what?' (Wicks & Crompton, 1986). For my analysis I identified 'disadvantaged' populations based on socio-economic characteristics of age, income, population density and area of residence. While comparing the poorest (*Iztapalapa*) and wealthiest (*Miguel Hidalgo*) boroughs in Mexico City a series of steep socio-environmental differences are observable. For instance *Miguel Hidalgo*, a borough with a relatively small size (26.96 km^2), medium population density, very low poverty levels and a highly educated population hosts 197 GPSs (Map 4). Conversely, *Iztapalapa,* a larger in size (117 km^2) borough with the highest population density in the entire *Distrito Federal*, very high levels of poverty and ruinous lack of access to basic social services accounts for 133 GPSs (Map 5). In addition, taking in to account the PNI analysis done for the entire city, *Iztapalapa* and *Miguel Hidalgo* are almost exact opposites when compared. In one hand, *Miguel Hidalgo* presents a *low* to *very low* need of parks per census tract. In the other, *Iztapalapa* presents a *high* to *very high* need of parks per census tracts in the large majority of its area. However, notice that even in *Miguel Hidalgo* the need of parks is ample. From a total of 171 census tracts, 109 (63%) were graded as having a *very high* need of parks and only 9 (5.2%) were graded in *low* or *very low* need of parks. Even the wealthiest borough of the city presents a severe concentration of parks biased against populations with substandard socio-economic characteristics. In this regard *Iztapalapa* presents the worst condition; from a total of 515 census tracts, 425 (82%) were graded as in *very high* need of parks and only 5 (0.97%) census tracts were graded as *low* and *very low* (Table 4). Considering that populations with a substantially higher level of pauperization should be targeted as priority groups to be served, park inequality in Mexico City is extreme.

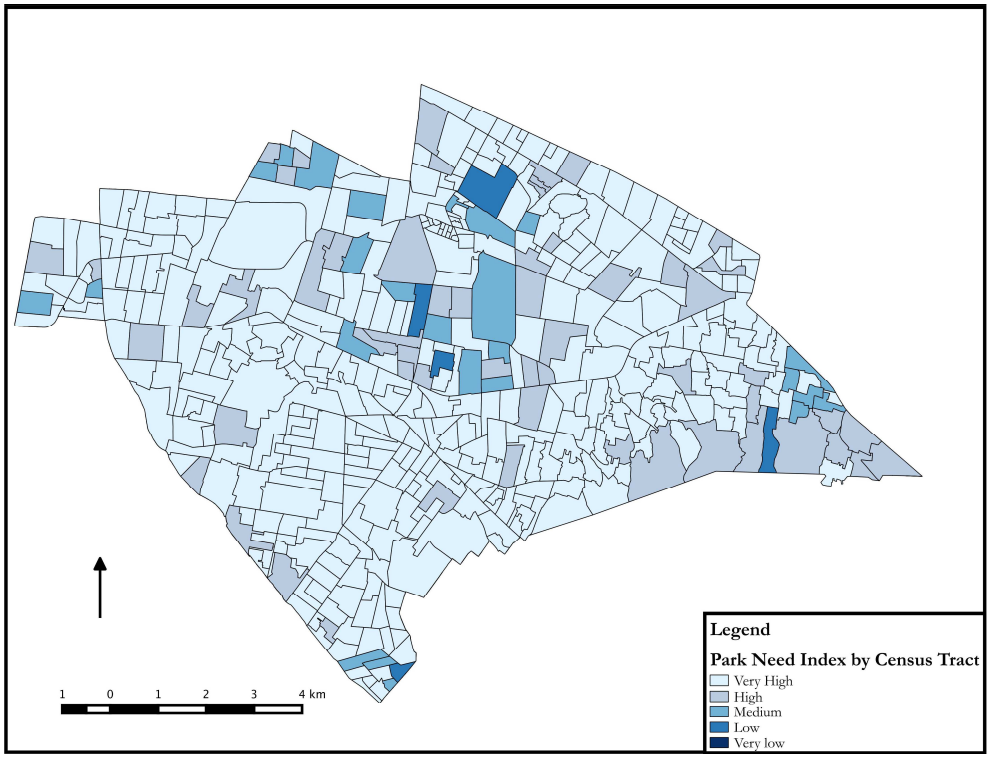
Map 6. *Miguel Hidalgo* levels of poverty, distribution of GPSs and PNI





Map 7. *Iztapalapa* levels of poverty, distribution of GPSs and PNI





Procedural Injustice: Institutional Legacies on the Production of GPS

According to Boone et al. (2009:777), "a limitation of much environmental justice literature is the inference of process from pattern. Although the distribution of parks or hazardous facilities can suggest possible linkages between race and the location of environmental amenities or disamenities, to advance the science of environmental justice it is necessary to investigate the drivers or forces that generate those patterns." As documented in the previous chapter, Wakild (2007) disentangled the socioeconomic knots interwoven with historical decision-making processes that resulted in the emergence of urban parks in Mexico. Specific actors played preponderant roles during the modernization era of Mexico and concomitantly Mexico City's social, economic, political and urban development determined where green space was located in the city and who had access to enjoy its benefits. For instance, Wakild (ibid) analyzed the critical role of two historical characters during a period of major urban development and modernization in Mexico, Miguel Angel de Quevedo and Jose Yves Limantour—"*los cientificos*"(the scientist)— both part of an elite governmental group of the Mexican bourgeoisie that were key for the decision making processes inside Mexico City. Quevedo and Limantour, were in charge of two of the largest and most important urban projects in Mexico's capital during the modernization era, in one hand the project of urban sanitation for millions that migrated to Mexico city after the Mexican Revolution, and in the other the colossal task of making Mexico City a modern, more European city, capable of showcasing Mexico as a civic and progressive country, avoiding by all means the reality of a broke and mostly indigenous state (Johns, 1997).

Wakild, presented a detailed study of the major park projects in which Limantur and Quevedo were involved: first, the reconstruction of Chapultepec Park, and secondly the creation of the Balbuena Garden. A quintessential example of Diaz and "the scientists" legacy on Mexico City's green public space is Chapultepec Park, currently the largest park of Latin America. *Los Cientificos* were very concerned with the issue of "rural backwardness"; they wanted to see a more sophisticated Mexico City, modern and attractive for foreign investment. The international demand for cities to produce and consume goods and services forced the president Diaz administration (1876-1911) to "clean" and "beautify" Mexico City. Chapultepec Park, located next to the Chapultepec Castle—originally constructed for the French royalty during the French occupation in Mexico— evolved to became a space for the dominant classes and was successful in fulfilling economic and political needs. On the other hand, the Balbuena Garden was designed for the marginal classes of the city, as a celebratory project for the centenary of independence. Wakild offered a comprehensive analysis of the reasons why the Balbuena Garden was developed; she concluded that the political rationale for both projects was to demonstrate the good health and civility of the city, eradicating "undesirables" (principally the newcomers, mostly illiterate poor peasants). The Balbuena Garden was intended to educate people in civic manners, the garden was not constructed or founded for the people to enjoy as a recreational space, but as a tool to educate and control migrating populations in order to project a modern and safe image to Europe and the rest of the world. Attracting foreign capital to invest in Mexico was undoubtedly the main driver to create these green public spaces.

Wakild argued convincingly that the development of Mexican urban parks is a clear example of how the political economy in Europe had an effect on decision-making processes across the Atlantic. This globalizing phenomenon— that fosters and constrains the production of

space in cities as part of capital accumulation strategies dictated by foreign forces— remains constant in most countries, particularly in the developing world (Harvey, 2012). Wakild's examination of urban parks in Mexico City, albeit conceived as historical research, moved along lines of Urban Political Ecology as her analysis was centered in power relations, economic and social factors and particular geographical (physical) characteristics that determined the material and discursive production of parks in Mexico's capital. In what follows, I explore three case studies in the current postindustrial neoliberal context of Mexico City—all of them related to parks..

Borough of Miguel Hidalgo: Chapultepec and Bicentenario Parks

Marxist Geographers like Harvey (2010) and Smith (1996, 2008) maintain that there is irrefutable evidence demonstrating that "capitalism, and more specifically, neoliberal capitalism, although geographically differentiated across global axes, is now the ubiquitous mode of production affecting the development and environments of cities across the planet"(Heynen, 2006b; p. 4). Mexico is not an exception, and in the particular case of Mexico City, neoliberal polices are the driving force of production, commercialization and consumption of all goods and services (Morton, 2003b; Snyder, 2001c; Thacker, 1999). An archetypal characteristic of global neoliberal policies is the marketization of everything, including the environment (air, soil, water, biodiversity etc.), and within cities, space itself is subject to commodification (Harvey, 1989; Smith, 2008; Swyngedouw, Moulaert, & Rodriguez, 2002). As an example of this trend, in 2012 two urban parks where partially privatized in the borough of Miguel Hidalgo, northwest of Mexico City, dispossessing several neighborhoods of their green public spaces.

Chapultepec Park

The first case study is the partial privatization of Chapultepec Park —located within one of the largest urban forest in Latin America, the Chapultepec Forest (686 hectares) in the borough of Miguel Hidalgo. In November 2012, after twenty years of litigation against the administration of Mexico City accused of a "process of illegal expropriation"[33], *Trepi* (real estate and constructing company) became the owner of 8950 m^2 of Chapultepec Park (La Jornada, 2012). *Trepi* immediately fenced the perimeter of the area with wire-mesh preventing park users from walking walk through that part of the park. This event effectively deprived the population of Mexico City from a considerably large area declared "of high environmental value"[34] by a foreign firm that intended to offer luxury residences with Chapultepec Park as their backyard.

Losing part of Chapultepec ignited a series of protests against *Trepi*— now owner of former public parkland— and against the administration of Mexico City that was incapable of preserving desirable urban green space. Several grass roots groups in Miguel Hidalgo such as *SalvoLomasChapultepec*, *Defensa Ciudadana del Parque*, *Tlalpan Conciente*, *ALconsumidor* and *Alarbo* among others contested the privatization in different ways. Daniel Gershenson (president of Alarbo) considered the event was "an inadmissible environmental injustice"(*RescataChapultepec NO a la privatización de nuestros bosques #2 parte*, 2012) and Eduardo Farah (Mexican environmentalist) claimed that "this privatization event have only

33 Supreme Court of the Nation, case 1321/2007
34 Expropriation Decree, Federal Mexican Government, 1992

one objective—to accumulate money— not for city, but for corrupt bureaucrats and rapacious foreign companies"(*Protestan por privatización de Bosque de Chapultepec*, 2012).

I selected Chapultepec Park as a case study due to its historical importance as the first urban park in Mexico City. Until now, there are no studies regarding the evolution of this green space in Mexico during the post-industrialized[35] era when:

1) Neoliberal capitalism started to permeate as the main transformative force of cities in Mexico (Delgado, 1995, 1997, 2000, 2012) and

2) The Mexican environmental discourse was transformed by neoliberalism from social and environmentally conscious notions to a technocratic and sustainable development approach (Durand Smith et al., 2011; Lezama, 2000).

During the early years of public administration of green public spaces, spanning from the *Porfiriato* (1876-1911) to the modernization efforts of Lazaro Cardenas' administration (1934 to 1940), the overarching goal of preserving urban nature was merely aesthetic; creating and preserving parks or gardens was expensive and a task that only copious private investments could afford to undertake. Therefore, Chapultepec Park was not originally

35 According to Haber (1989)the first wave of Mexican industrialization extended from the 1890s to the 1930s, a period in which Mexican manufacturing moved out of the artisanal shop and into the factory. Afterwards, from the 1940s until the second half of the 1970s, a second wave of industrialization in Mexico emerged characterized by strong state intervention to foster domestic manufacture through import substitutions. The third and final wave, from the 1980s onwards, is the postindustrial stage in which domestic production started to decline and transform as a result of international forces intervention in the economy— primarily in the form of treaties such as NAFTA (Moreno-Brid, Santamaria, & Rivas Valdivia, 2005). During this stage, the dominant activities within Mexico City ceased to be industrial or manufacturing-based and moved towards information processing, coordination of large public and private organizations and management of financial markets (ibid).

conceived to serve the general public but the Mexican 'jet set.' Historically, Mexican bourgeoisie has been comprised of immigrants with investments in the capital city; all of them resided in luxury residential areas nearby the downtown and aimed to preserve their neighbors in the best possible condition. The rest of the city operated only as means to provide housing for an emerging class of marginalized rural immigrants offering cheap labor (Johns, 1997).The consequences of such historic context have been documented and remain a legacy in Mexico City. In "From national capital to global capital: Urban change in Mexico City" by Canclini & Liffman (2000: 207-208), authors asserted:

"In the poor settlements to the north and east of the capital, industrial development has not led to the creation of museums and auditoriums, and there are few parks and recreation sites. Only radio, television, bullfights, a few public libraries, and, since 1985, video stores, afford the many residents of these areas something to do in their free time. Where national cultural works have not been undertaken, cultural products have been imported through multinational entertainment industry. In consequence, the public cultural space available to Mexico City's spreading population is not the nationally sponsored public spaces of theaters and monuments but that of the media of mass communications.

Chapultepec currently concentrates a large majority of Mexican cultural resources: museums, theaters, massive music venues and a suite of parks and lakes. Yet, it would be naïve to think that Chapultepec has been transformed and opened to the majority of Mexican citizens living near the center of the capital. And indeed, Chapultepec is less accessible for anyone living far from the area. As showed in previous maps , the borough that fulfills the role of host of Chapultepec, Miguel Hidalgo, is the wealthiest space in the city. It would be unaffordable for a low-income family to visit Chapultepec, its museums, amusement parks or gourmet restaurants. Traveling from a borough such as *Iztapalapa* or *Azcapotzalco* to *Miguel Hidalgo* would be time consuming and costly for the large majority of

individuals. Yet, not everything was restricted. In the late 1980s Mexico City's administration passed a law to make most museums in the downtown area "free from charge" on Sundays. The policy worked and tens of thousands traveled to the area to visit the attractions. Nevertheless, according to Monnet (1996) and Monnet & Bonnafé (2005) the policy attracted hundreds of illegal street vendors that invaded the area. Waste produced by food vendors became a serious environmental issue along with violence that resulted after disputes for spaces to install improvised "*changarros*"[36] to sell. Eventually, the space became an unplanned hub for unregulated commerce that yield a tremendous deterioration of Chapultepec. Consequently, Chapultepec became a space with contrasting poles. On the one hand, the luxurious Chapultepec accessible only for mid and hi-income populations kept growing uncontrollably in favor of opulence for the rich in the capital. On the other, popular Chapultepec deteriorated as inequity became entrenched among the less privileged. This is how Chapultepec has become a deeply differentiated, double-faced public space. Unfortunately, neoliberalism takes advantage of both poles capitalizing on the uneven context. The obvious gentrification of downtown Mexico City has become a tremendously profitable business for commercial developers. Wealthy populations are willing to pay private companies or the government to "clean" the area from undesirable visitors and to maintain a secluded environment exclusive for them. This explains events such as the *Trepi* incident— despite the unconstitutionality of the transaction between Mexico City's administration and a foreign company interested in buying public parkland.

Ultimately, private financial powers determine the future of public spaces in Mexico following improvised rules of "sustainable development" that promote and perpetuate

[36] Small improvised and unregulated stores.

capital accumulation over any other social, environmental or cultural needs. Chapultepec Park is a quintessential example of a public historical landmark that has been divested from Mexico City's administration and offered as a commodity to private companies. According to reports by the Probosque Chapultepec Trust[37] (in Spanish, *Fideicomiso Probosque Chapultepec*), $269,979,525.37 mxp were invested in the "revitalization" of Chapultepec by Coca-Cola Company, Bimbo, HSBC International finance services, Televisa, Telmex, Wal-Mart, JP Morgan foundation, Nike, American Express, Scotiabank Inverlat, Merrill Lynch and Louis Vuitton to name a few. Fiscal benefits are commonly advantageous for corporations "donating" resources to public projects(Navarro, 1988). Yet, a concomitant question within this context would be: are there any strings attached to these resources? (Weber, 2002) Further research on money flows invested in projects such as Chapultepec is needed to determine the actual consequences of overthrowing the state's responsibility of providing urban amenities in a democratic manner by neoliberal forces.

Bicentenario Park.

The *Bicentenario* Park— located in the borough of Miguel Hidalgo as well— is one of the most interesting parks to study in Mexico City due to the fact that it was constructed over brownfield land. In March 1991 the *Refinería 18 de Marzo* (March 18th Refinery)—operated by *El Aguila, a Mexican petroleum* company—was closed in order to reduce air pollution in Mexico City and to preserve the health of citizens dwelling in the city (according to official statements). However, there are no official detailed documents or academic reports explaining the specific reasons exactly why this refinery ceased operation at that time; if the

[37] Full report can be found in http://www.chapultepec.org.mx/web2013/wp-content/uploads/pdfs/informe_anual_probosque_2012.pdf

main motives were environmental— as reported by mass media and other governmental institutions— there are no studies demonstrating the specific negative environmental burdens that the state intended to mitigate. This is not to say that the refinery did not create environmental impacts after over 60 years of operations; recent reports presented by UNAM stated that the "soil and subsoil contamination in the site was notably beyond expectations" (*Libro Blanco*, 2012; p. 28).

In Addition, Delgado (1997, 2000) and Thacker (1999) documented the political maneuvers that the *Partido Revolucionario Institutional* (PRI)—party that governed Mexico for more than 7 decades— performed in preparation for the North America Free Trade Agreement (NAFTA). According to the authors, oil extraction and refining were key activities negotiated before signing NAFTA in 1994. The Mexican federal government agreed to export oil and to import cheap gasoline instead of producing it on Mexican territory. This decision bowed to international pressure from the USA to enhance the already powerful neoliberal political economy in Mexico that generated large sums of capital for North American transnational corporations. Against this historical background, in May 2007 president Felipe Calderon (2006-2012) announced the ambitious project of *Parque Bicentenario* to be constructed upon the lands that had been occupied by the old refinery. Calderon also stressed that the purpose of the project was to create one of the greatest parks in Mexico City useful to ameliorate contamination and to improve the overall urban health of the city's inhabitants. The project had an estimated cost of $ 1,847,718,668.00 (mx pesos)[38], an unprecedented investment on green urban space infrastructure in Mexico City. The money

[38] Fideicomiso de Inversión y Administración número FPBC/LPPE/001/2008, SEMARNAT, 20089(Libro Blanco, 2012).

served a variety of different tasks ranging from dismantling the original infrastructure used by the refinery and remediating the land for recreational purposes to paying the *Universidad Nacional Autónoma de Mexico* (UNAM) to conduct environmental impact assessments of the site (Libro Blanco, 2012).

The *Bicentenario* Park is located in the boundary of *Azcapotazlco* and *Miguel Hidalgo* boroughs. *Azcapotzalco* is, in general, a medium-low socioeconomic working class borough compared to *Miguel Hidalgo*, considered by some authors to be one of the elite boroughs of Mexico City (Monkkonen, 2012). The reasons for and the context in which the *Bicentenario* Park emerged in Mexico City are very similar to the case of the Kenneth Hahn State Recreation Area (KHSRA) in Los Angeles, California, USA discussed in chapter 1 (Byrne et al., 2007). The authors (ibid:175) argued:

"Although at face value the Kenneth Hahn State Recreation Area may seem to be a benevolent gesture on the part of the local state to a park-deprived inner-city community, we believe otherwise. […] We have shown in this paper that that new urban parks in Los Angeles have been marshalled to placate inner-city people of color and the urban poor demanding a better quality of life."

These two parks were the byproduct of the end of an industrial era, both parks were constructed upon a functionalist discourse that promised to fulfill environmental and social needs. However, both parks generated superficial development that ended up restraining or even suppressing historical demands for a healthier and more just urban environments— an endeavor that requires much more than a park over a brownfield site.

The *Bicentenario* Park project aligns perfectly with the idea and goals of urban "normalization", a classic characteristic of neoliberal capitalism that seeks to gentrify spaces in cities in order to make them attractive for global investors to generate profits at the expense of citizens. It is clear that neither of the parks in Los Angeles or Mexico City are capable of providing long-term solutions to urban pollution or social inequality in these cities. Although it has been demonstrated that the environmental and social services provided by parks are essential for a "livable city"(Garvin & Brands, 2011), the structural sources of contamination, unequal distribution of green spaces and social segregation in both cities persist perhaps perniciously obscured by politically high profile yet hollow urban projects like these parks. Advocates of park-based revitalization in Europe (Madge, 1997)(Inroy, 2000) and in Mexico City have centered their discourse in physical and moral uplift coupled with economic improvement of surrounding areas.

Cuitlahuac Park

The last case study is *Cuitlahuac* Park located in the borough of *Iztapalapa* in the southwest of Mexico City. The borough of *Iztapalapa* is one of the most marginalized in the city (Mier y Terán et al., 2012); the levels of violence, unemployment, irregular housing, water scarcity and transportation deficiencies are the highest in the entire *Distrito Federal* (Trexler, 2003; Vergara, 2009). *Iztapalapa* is also a demographically dense borough with the highest number of children and—as seen earlier in maps 4 and 5— the area with least available green space per habitant. *Iztapalapa's* environmental, social, economic, and political characteristics are the antipode of *Miguel Hidalgo*, hence, I decided to use this borough as a case study to contrast green public space conditions in Mexico City.

Cuitlahuac Park is a very peculiar case, as it was constructed over the former *Santa Cruz Meyehualco* landfill. This landfill functioned for over forty years as one of the principal recipients of solid waste from Mexico City until the early 1980s; the landfill received daily an average of 6400 tons of waste and 800 families of scavengers at the site clandestinely undertook recycling operations(Castillo Berthier, 2003). According to Mexico City's government calculations, in its entire working life the landfill captured 44,712,500 tons of waste that today serve as the foundation for *Cuitlahuac* Park. Notwithstanding the history of the site, the administration of *Iztapalapa* decided to start the project and the park was open to the public in 2003. Several federal and local institutions were consulted to determine if the land of the site was viable to be used as a park; institutions like UNAM, Environment and Land Management Agency for the Federal District, Directorate of Urban Reforestation, Parks and Bike Paths of Mexico City and the Ministry of Environment of Mexico agreed that the space was safe arguing that sanitation operations were successful (*Ciudadanos en Red*, n.d.). According to official reports the parks had a total estimated cost of 114 million Mexican pesos, a considerable figure that aimed to provide green public space to one of the most underserved boroughs of the city in terms of green public space. Approximately 60, 000 trees, predominantly Eucalyptus and *Causarinas,* cover 75% of the total vegetated surface of the project (reported to be 145 hectares) and serves approximately 5000 visitors per week, mostly infants and elders.

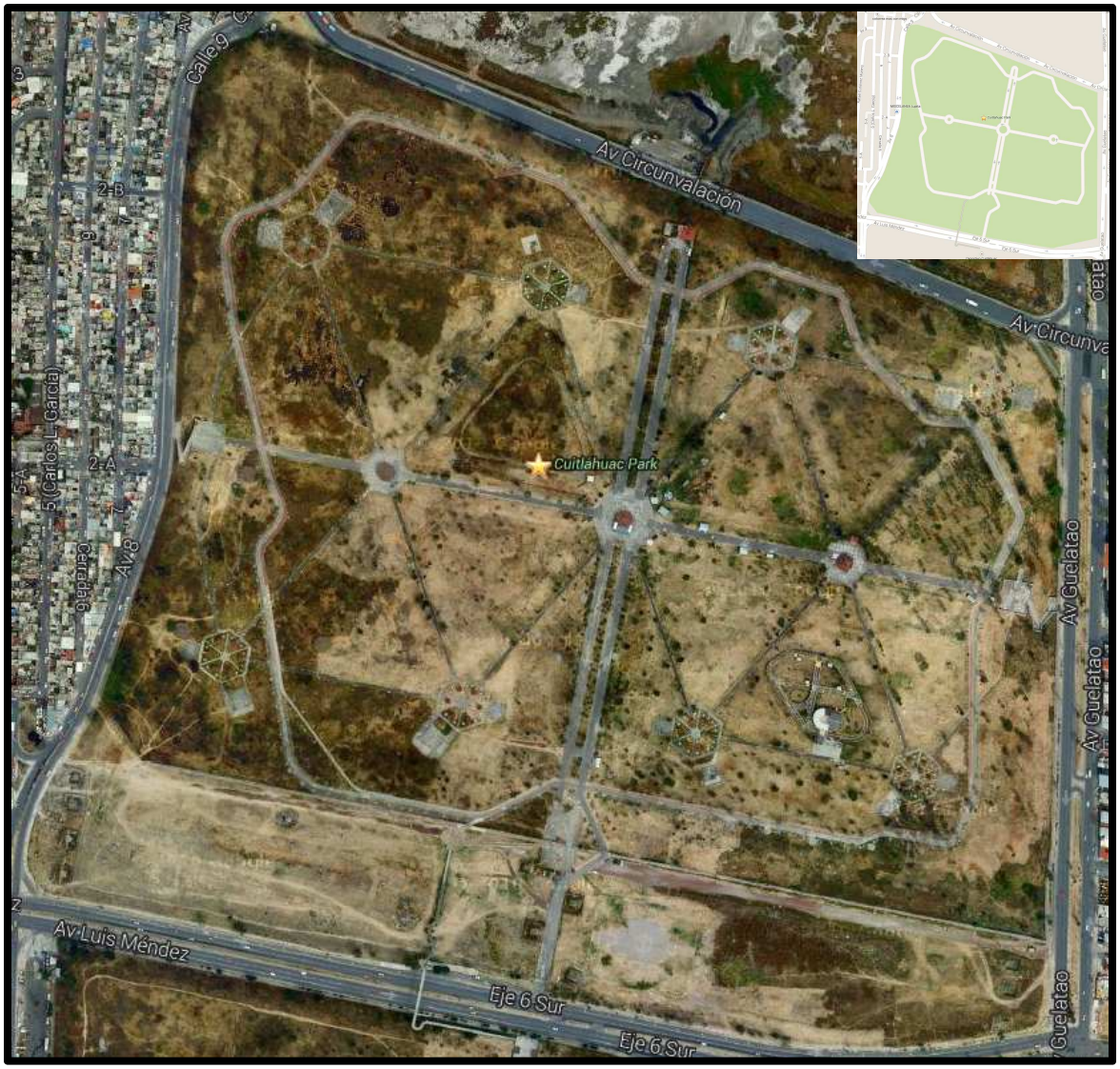
Today, several articles from major newspapers in Mexico City have reported that the park appears to be "abandoned" and that maintenance and conservation tasks have stopped for at least one complete year (*Al Momento Noticia*s, n.d.). Considering that public records show that there is an annual maintenance cost of 1.7 million Mexican pesos—mostly intended to

manage the biogas that garbage is generating beneath the park—it is easy to understand the reasons why this park has become "an incredible waste of resources" (Guillermo Moreno Rojas, coordinator of *Cuitlahuac* Park, *Milenio Noticias*, 2013).

While conducting fieldwork I visited parks in the city discussed in this research. And visiting *Cuitlahuac* Park was an unpleasant and tense experience. The park is located in a secluded area of the *Iztapalapa* borough with the highest rates of violence in the city (Bayón & Saraví, 2013). The area surrounding the park is, for the most part characterized by old illegal settlements lacking basic urban infrastructure, deteriorated and uniformly marginalized. *Cuitlahuac* Park, far from being a green space capable of ameliorating the dire conditions of the area, inadvertently reinforces the nearby neighborhoods' aesthetics: it appeared to be neglected and dangerous.

My main objective during my visits was to corroborate reports of methane gas smells in the park and its vicinity. I visited the area three times, once in September and twice in October of 2014. During my first visit I attempted to interview any authorities in charge of the park, but only maintenance staff were present, they all insisted that the *Delegacion* (City Hall) could provide me with information and that they would prefer not to comment on the condition of the park. No methane smells were noticeable during my visits; yet, the park's condition was deteriorated. Stray dogs, rats and homeless people, destroyed or vandalized infrastructure and barren patches without any vegetation were at sight inside the park. Few trees were present and grass appeared to be dead or very dry, presumably due to abandonment coupled with a dry fall season. Reports by the local government stating that 75% of the park is vegetated are hard to regard as true (Picture 1).

Picture 3. Cuitlahuac Park Greenery



During my second and third visit I talked to people living nearby the park, 6 individuals, 4 men and 2 women. I questioned them about the foul smell reported by newspapers and the allegations regarding drug dealing and prostitution inside the park. None of them reported using the park at all. A man living 300 meters from the main entrance of the park told me

that the "rotten smell" (in Spanish, "*olor a prodrido"*) was not noticeable during the cold season. He told me that during hot days it is almost unbearable to be around the park:

" The park is made of garbage (sic). Beneath the grass there is a landfill and during the summer everything starts to boil. Kids play futbol in the fields[39] *but the rest of the park is empty. It's dangerous when it gets dark"*

Regardless of the fact that newspapers have documented methane gas smells, unsafe installations and abandonment reports[40], there is no official statement regarding these issues. I analyzed PAOT's (Environmental and Land Use Planning Attorney office for the Distrito Federal, in Spanish*, Procuraduría Ambiental y del Ordenamiento territorial del Distrito Federal*, PAOT) monitoring civil environmental demands (complaints) database and found that there are a total of 539 demands (from 2007-2010) archived for the borough of *Iztapalapa*. Almost one quarter of the total of those complaints have been categorized as "Green Public Space complaints" (134 complaints, 24.8% of the total). Such demands include reports of abandonment, illegal deforestation, the presence of dangerous animals (feral rats and dogs), accumulation of solid waste and illegal use of the green space. Furthermore, a total of 23 (4.2% of the total) demands were categorized as "Odors, Gases and Vapors demands" (OGV). Nevertheless, only 2 OGV demands and 27 GPS demands were registered within a radius of 1.5 Km from the centroids of the *Cuitlahuac* Park and two other polygons that were part of the *Santa Cruz Meyehualco* Landfill restoration project (Map 6).

[39] There is a set of at least 20 usable "dirt" soccer fields and 3 natural grass fields in the park.

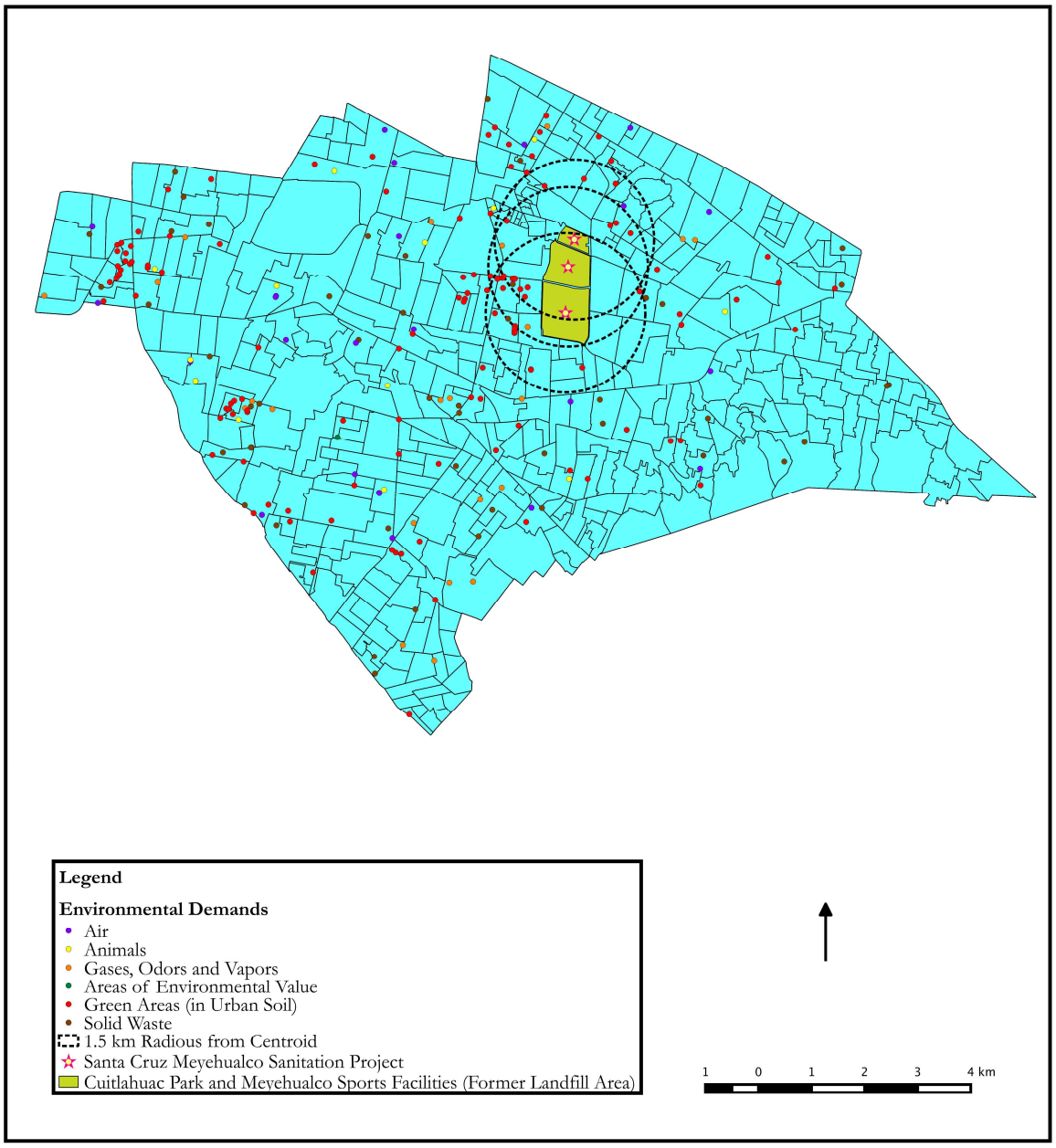
[40] ("Demanda diputada local mantenimiento al Parque Cuitláhuac en Iztapalapa | Al Momento Noticias," n.d., "En abandono, parque de 12mdp en Iztapalapa," n.d.)

Considering current data, it would be rash to conclude that the place is dangerous or toxic. However, It is important to underline that PAOT has detected a significantly smaller number of environmental complaints in poor boroughs such as *Iztapalapa*. The problem seems to stem from the lack of information regarding the existence of PAOT coupled with people's lack of concer with respect to green public space in that area (PAOT, 2010).

Cuitlahuac Park is a classic urban socio-environmental case study because of the atypical conditions in which it emerged. The specific political, economic, social, ecological and cultural processes that resulted in the selection of a former landfill to create a park are illustrative of Mexico City's green public space political ecology. One of the fundamental characteristics of Mexico City's political ecology is the control that financial forces have to dictate specific criteria used to produce urban space. If these forces are not present in the production of space in the city, projects are prone to fail. Such is the case of *Cuitlahuac* Park, a project that lacked proper planning and culminated in a substantial waste of resources[41]. Moreover, the fact that this park was created to ameliorate the green public space deficit in the poorest area of the Mexico City— where the largest urban landfill was allocated (a classic example of environmental injustice)— is a discursive, political and material contradiction.

41 Presuming that the total of money invested in this project was used without any sort of corruption. Indeed, given that such amount of money was not enough to produce a functional park, it is very likely that resourced were misspent.

Map 8. *Iztapalapa* Environmental Complaints and *Cuitlahuac* park



Conclusion

Distribution of GPSs in Mexico City is clearly biased against marginal populations. Evidence shows that socio-economic characteristics in the Mexican capital are directly related to the number of m^2 of green areas available per person. GPS concentrates in wealthy areas of the

city where older, more educated individuals reside. Conversely, densely populated areas with very high levels of poverty are acutely underserved. As explained earlier in this chapter, parks are the most common form of GPS in Mexico City and its distribution is also linked to the population's socioeconomic features. However, even in affluent areas of the city there exists a pronounced need for parks. That is not to say GPS deficit in the Distrito Federal is in any way uniform; in fact the unequal nature of GPS distribution is palpable and constitutes an undeniable instance of socio- environmental justice. A more sophisticated understanding of GPS equity in the particular context of Mexico City was an urgent scholarly and governmental task useful to advance efforts to reduce the gap between those with and without access to urban nature in the city. Nevertheless, GPS deficit and inequitable distribution cannot be addressed without transforming the structures that produce and perpetuate social and environmental injustices in the first place. Institutions in charge of managing GPS in Mexico City are responsible for a series of procedural injustices that prevent marginal populations of having access to space in the city. In the particular case of parks, the intrusion of private corporations —often times in charge of providing financial resources for urban infrastructure— has been a major obstacle for the state to develop and maintain solid urban development projects that benefit those most in need. The structural forces that set and maintain social, political, economic and cultural relations in urban context have to be revised.

Space in Mexico City seems to be following a commodification and privatization trend in favor of a group of national and international corporations seeking financial profit. The creation and management of the most important GPSs in Mexico City is the result of companies investing private resources with the main objective of financial return prioritized over any environmental, social or cultural need. This context renders state efforts to govern

urban spaces ineffective or inexistent. A central characteristic of GPS in Mexico City is the ubiquitous presence of private capital used for public projects, an oxymoronic dynamic that results in the imposition of agendas established by a reduced group of beneficiaries at the expense of the large majority of the city dwellers.

Evidence suggest that the Mexican state is no longer independent, it is incapable of controlling public tax resources and its capability to create and maintain meaningful public projects has been circumscribed. For example, as discussed early in this chapter, the Federal District Environmental Law (FDEL) has been ignored since 2002. According to the FDEL starting in 2002, a yearly report on the evolution of green public spaces was responsibility of each borough in Mexico City aided by the Ministry of the Environment in the Distrito Federal. However, there exist only 1 inventory of green public space for 2002 and no further account of these areas has been done for the past 12 years.

Reducing the state participation in governance affairs, such as providing urban amenities, is a quintessential neoliberal goal. In the context of Mexico City and its GPSs, governmental institutions responsible of serving citizens have been substituted for neoliberal forces. Consequently, companies take over urban space and in order to commercialize it as a commodity to be bought by consumers. This exclusionary practice results in segregation of those individuals that are not capable of affording goods and services that are supposedly paid using tax money. Therefore, GPS deficit in marginal areas of Mexico City is indicative of state institutions' incapability or unwillingness to manage resources with a democratic social approach. With the state's abrogation of responsibility, there appears no viable alternative but to succumb to private corporations impositions in order to obtain resources for public projects. Ultimately, the state's dependence of private capital to secure governance

yields uncontrolled corporative intervention. This intervention, as seen with the examined case studies, will inevitably result in replacing of social goals with private financial objectives and the perpetuation of social and environmental injustices.

CHAPTER 4

THE POLITICAL ECOLOGY OF GREEN PUBLIC SPACE IN MEXICO CITY: AN INSTITUTIONAL ANALYSIS

This chapter situates the current green public space transformations in Mexico City within its historical context. Applying the theoretical lens of political ecology, this chapter will expand on relevant political, economic, ecological and institutional factors from the late 1970s onwards, which engendered the creation of parks and green public spaces in the Mexican capital. The main objective of the following chapter is to "deepen the understanding of how local green space allocation, poverty, race and political power are oftentimes complexly entangled" (Byrne, Kendrick, & Sroaf, 2007: 153). This chapter will also present an analysis of a series of interviews made with governmental officers in charge of the urban environments in Mexico City. Interviews with high-ranking public servants, such as the Environment Secretary for the Federal District and the Environmental General Attorney for Mexico City, were analyzed[42]. The narrative of this chapter expands on three key findings. Firstly, the legacies of an historical entrenchment of the "rural-urban binary" that has resulted in poor planning and execution of environmental policies and plans in Mexico City. Secondly, the institutional fragmentation driven by a neoliberal logic that has deeply permeated the city's governance. And thirdly, the inception of decentralized institutions in charge of monitoring civil environmental demands, such as the Environmental and Land

[42] A total of 17 interviews were conducted with governmental officer and key staff members in the following agencies: Environment and Land Management Agency for the Federal District, Directorate of Urban Reforestation, Parks and Bike Paths of Mexico City, Ministry of Environment of Mexico City, Miguel Hidalgo/Iztapalapa green space key managers, Miguel Hidalgo/Iztapalapa Parks and Gardens Agency, Miguel Hidalgo/Iztapalapa Environmental agency director and the Chapultepec Forest Directorate.

Use Planning Attorney office for the Distrito Federal (in Spanish*, Procuraduría Ambiental y del Ordenamiento territorial del Distrito Federal*, PAOT).

I begin with a succinct review of relevant scholarship concerning the socioeconomic production of space in urban contexts. This review concentrates on two critical theoretical frameworks, Marxist Political Ecology (MPE) and Urban Political Ecology (UPE), applied to the case of green public spaces in urban areas. Subsequently, this chapter presents an account of the historical evolution of green public space in Mexico City starting from the pre-Hispanic era of garden-cities as Tenochtitlan in Mesoamerica to the postindustrial creation of aesthetically and economically pleasing parks created within a neoliberal context. The events, actors and processes involved in governmental institutions responsible for managing green public spaces in Mexico City were also traced and analyzed. The chapter concludes with a discussion of the complex influence that the political economy of Mexico City has on its socio-environmental institutions and the availability of green public spaces.

Socioeconomic Production of Space in a Capitalist City: Relevant Scholarship for the case of Green Public Spaces

A robust body of research has examined the effects of capitalism in the production of space in cities (e.g. Byrne et al., 2007; Harvey, 1989, 2010; Heynen, 2006a, 2006b; Swyngedouw & Heynen, 2003; Swyngedouw, Moulaert, & Rodriguez, 2002; Swyngedouw, 2005). For example, Don Mitchell's (2003) *Right to the City*—influenced by Henri Lefebvre's writings—demonstrated that urban space expropriation by a dominant class with an specific set of economic interests is recurrent in the "bourgeois city". In this context property rights are implicitly accompanied by coercive power used to exclude those without property.

Consequently, disempowered populations are limited in their rights and alienated from urban spaces.

Another prime illustration of the effects of capitalism on urban landscapes is the work of Neil Smith (1996). Smith coined the concept of *revanchist city*[43] to describe the consequences of urban neoliberal gentrification policies in New York City after the economic recession of the late 1980s and early 1990s. Smith argued that due to financial turmoil generated after the recession, the dominant class perceived that the "bourgeois order" was threatened and an unprecedented resentment amongst white-middle and upper class emerged against minorities. This stigmatization against "non-conventional members of society" was fueled by mass media demonization of the working class, feminists, environmental activists, gays and lesbians, and recent immigrants. Once the city's economy recovered, the full extent of neoliberal accumulation strategies became noticeable as public spaces such as Times Square and Bryant Park were privatized to lure investors and tourist to New York City. Smith also proposed that "*revanchism*" was not unique to New York or North American cities, but a common feature of global urban gentrification and the late capitalist city. Smith's thesis generated new scholarship from Scotland (MacLeod, 2002), United Kingdom (Atkinson, 2003), Netherlands (Uitermark & Duyvendak, 2008), Ecuador (Swanson, 2007), India (Whitehead & More, 2007) and the USA (Merrifield, 1996, 2000) to examine similar occurrences of revanchism. These subsequent studies found similar forms of urban spatial exclusion in different cities having neoliberal capitalism as the ever-present system of production and main driver of *revanchism*.

Marxist critique of the political economy of the 19th century city developed through an

[43] From the French word *revanche*, meaning revenge (see Slater, 2004).

articulation of the dialectics of nature, societies, power and capital (Foster, 2000). This equation remains crucial in the critical analysis of cities all over the world. Marxist Political Ecology (MPE) has been used to explain uneven distribution and access to green public space and parks. Studies have demonstrated that socio-ecological relations are the result of past and present structural processes inherent in urban political economy, such as income inequality, uneven property ownership, and the increased marketization of nature (e.g. Brownlow, 2006; Heynen, 2006a). For example, Heynen et al. (2006) research on the social production of urban forest in Milwaukee is an urban political ecology exemplar; they analyzed urban forest-inequities based on a Marxist political ecology framework that focused on the "interwoven knots of *social process, material metabolism* and *spatial form* that go into the formation of contemporary urban socionatural landscapes" (Swyngedouw & Heynen, 2003:906 in Heynen et al., 2006). By integrating urban-forest canopy-cover data from aerial photography, United States Census data, and qualitative data generated through in-depth interviews, their research showed that there is a socially inequitable distribution of urban trees within Milwaukee's metropolitan area. The authors incorporated into their analysis an examination of historical legacies of racial segregation— they identified high levels of socioeconomic inequality, predominantly among non-white populations— as a critical component that contributed to environmental injustices. The article's analysis emphasized the negative effects of relegating the responsibility for urban forests to private-property owners. Heynen warned that "continued neighborhood-scale disinvestment implies decreasing levels of residential [tree] canopy cover, especially in the city's poorest communities, thus leading to greater environmental injustice and more ecological problems for marginalized urban residents" (Heynen, 2006a: 14). Heynen is insistent on analyzing important past and present socio-ecological processes embedded in the political economy of

cities that can affect the creation, administration and maintenance of urban nature. In this context the institutionalization of policies, guidelines, norms and laws regarding urban environments is crucial. Factors that are instrumental in the conservation and destruction of green public spaces can, in fact, influence institutions in charge of urban nature.

Urban Political Ecology and Parks

A suite of ecological, political, economic and social features that produce and reproduce complex socio-environmental relations determines the political ecology of a given space. Parks, for example, are common in wealthy areas of cities around the world; however, socio-demographic differences among park users determine how parks are perceived and used (Gobster, 1998). It is important, for instance, to acknowledge that for some people parks are not necessarily considered a positive urban asset but, sometimes, a source of fear and insecurity (Brownlow, 2006; Davis, 1999; Madge, 1997). Brownlow (2006) presented a work that investigated the socio-historical production of the Fairmount Park System of Philadelphia suggesting that power and social control have a specific role "towards the production of hazardous, "unsafe" urban ecologies that undermine the terms of access [to green public space] and fracture human–environment relations among marginalized urban populations" (p. 242). Using "loosely structured" interviews and focus groups as methods, Brownlow gathered narratives regarding social and environmental changes in Philadelphia's Cobbs Creek Park. The author demonstrated that there is "a legacy of fear towards the city's natural environment" biased against minorities, particularly Black people and women, that "has had, and continues to have, profound socio-spatial and ecological implications" (p. 227).

Kitchen (2012), using a Marxist urban political ecology framework, offered a second

representative example of work investigating complex socionatural relations in urban settings in which trees, particularly an urban forest, are not perceived as a benefit but as a burden. He addressed place-specific conditions of Coed y Cymoedd in the valleys of South Wales (one of the largest urban forests in Europe) to construct "a narrative of the complex relationships, both historic and current, between communities, forest and the regulatory authorities in the governance of the urban forest of the valleys of South Wales [UK]" (p.1). His methods included focus groups and follow-up interviews with a variety of key stakeholder groups and organizations. Kitchen discussed a variety of tensions and contradictions within capitalist production regarding the use and benefit of trees in the urban context. He problematized the assumption that all trees represent, or could represent, only positive outcomes for urban dwellers (e.g. environmental and socioeconomic services). The main objective of his work was to answer the question "Are trees always 'good'? This question challenged the general consensus amidst the vast majority of studies that trees are necessarily a positive component of urban nature. Kitchen concluded that, "trees possess inherent ecological value but what research shows is that their value as environmental goods depends on context" (p. 13). Indeed, the case of Coed y Cymoedd with its specific physical characteristics—an industrial forest of extensive, dense plantations of trees, generally conifers— and socioeconomic characteristics[44] provides an example of a context in which trees, a forest of them, are not there to serve environmental or social needs but to generate and accumulate capital at the expense of communities that settled originally in the area. Kitchen's research showed that communities dismissed the whole forest as 'not natural' or 'a wood factory' (p. 7) that generated criminal behavior and a general feeling of unfairness

[44] Hybrid urban-rural communities historically dedicated to coal mining, poor, unemployed and socially deprived.

against the people of the valley.

Another example of UPE studies and parks is the work of Byrne et al. (2007). The authors conducted research in Los Angeles, California to examine the Kenneth Hahn State Recreation Area (KHSRA) development using urban political ecology as a theoretical framework. They traced some of the "political, economic, ecological and institutional factors from the late 1920s onwards, which engendered the creation of a park atop an oilfield" (p. 153). According to their analysis— based on a review of the historical park development in Los Angeles— recent and unprecedented political and fiscal support spurred by the Southern California oil industry shaped the complex relations that entangle green space allocation, poverty, race and political power in one of the most contaminated brownfield sites in the inner-city landscape of Los Angeles. Using a combination of archival research, in-depth interviews and geographic information systems (GIS) analysis, Byrne et al. explored the socio-political foundations of KHSRA to reveal the ways in which economic, political, historical, cultural and environmental factors culminated in the development of this atypical park. Two elements were determinant in the production of the KHSR: the discovery of oil in the late nineteen century—an event that radically changed existing land use patterns, encouraged industrialization, contributed to real estate speculation and created a legacy of environmental destruction lasting until today— and a "boom in residential development […] in the late 1940s [as a result of] post-war migrants flocking to Southern California"(p. 162)— an event that increased the property value of the zone and changed forever political economy of the area.

The authors concluded that park revivification in Los Angeles— during their research and particularly in the case of KHSRA—had the specific political purpose to "placate inner-city

people of color and the urban poor demanding a better quality of life" (p. 174). Regardless of the apparent "benevolent gesture on the part of the local state to serve a park-deprived inner-city community", creating parks can have specific political motives that go beyond any social or environmental needs (Madge, 1997). Byrne et al. celebrate the urban ecological restoration and access to nature "driven from the bottom up by communities of color and the urban poor" but they also highlight that it will be a challenge for those communities — as property values improve with the new park— to avoid displacement.

Political ecology, in its urban or Marxist approach, emphasizes upon the significance of taking a historical perspective for proper analysis of social transformation. After studying these theoretical frameworks in depth, Roy (2011:2) asserted: "Eventually scholars have recognized the importance of merging a geographic understanding of socio-spatial phenomena with Marx's historical perspective thus formulating "historical geographical materialism"[45] as an analytic tool for understanding human-nature interaction". Therefore, the following section will commence addressing the historical transformations of green public spaces in Mexico as the foundation to analyze further economic, social and environmental changes in the context of Mexico City.

History of Green Public Space in Mexico City

From the Pre-Hispanic sacred *Chapultepec* Garden in *Tenochtitlan*, the first Mexican City, to the post-modern architecture of the *Parque Bicentenario* in the *Distrito Federal*, the history of green public space in Mexican cities is rich and intricate. Documented evidence supports the existence of gardens (open to city dwellers) in Mexico as early as 1324 when *Netzahualcoyotl*,

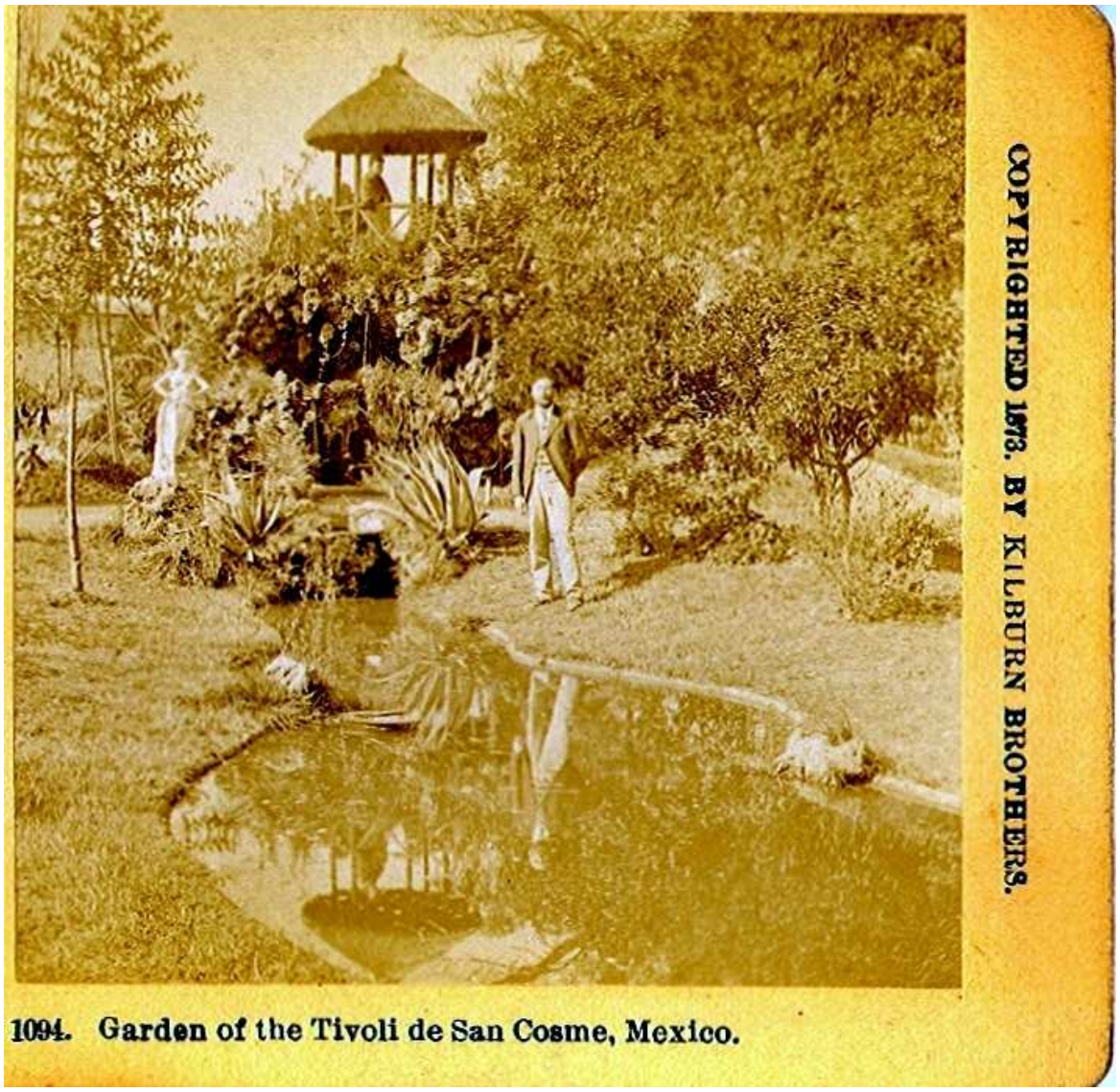
[45] See Harvey (1989) for a detailed analysis of Marxist influenced historical geographical materialism.

emperor of the largest Aztec city in Mesoamerica, mandated the construction of an aqueduct to fulfill water irrigation needs for the "*Templo Mayor*" and the sacred gardens of the *Chapultepec* Forest (Martinez, 1991). Several academic accounts of Pre-Hispanic cities in Mexico elaborate on the importance of different species of flora and fauna in the region that served for purpose of food production and proto-urban landscape embellishment (Isendahl & Smith, 2013; Stark, 2014). The indigenous population of large pre-Hispanic Mexican Cities had an intimate and well-developed relationship with nature within their cities (Cohn, 2012).

During the Spanish occupation of Tenochtitlan (largest Aztec city during the 16th Century) in 1521, European influences radically reshaped the urban landscape and all interactions of city dwellers with nature. The repercussions of Spanish colonization on the urban landscape started with the introduction of exotic flora and fauna that significantly altered the ecosystem of Mexican cities and restructured the environmental management practices of the entire country. Concomitantly, the increasing population in colonized cities resulted in extreme deforestation to satisfy the need for fuels, water and transportation routes (Martinez, 1991). Indeed, the most important impact of the Spanish colonization in Mexican urban spaces was the forced adoption of plazas as urban public spaces (Stanley, Stark, Johnston, & Smith, 2012). Plazas were customarily accompanied with a church, indispensable for the Spanish endeavor of evangelizing indigenous peoples in the Americas. These public spaces were open for all dwellers but not used by indigenous peoples as much or in the same ways as European colonizers (Low, 2010). It is clear that as colonizing efforts escalated in America, segregation of indigenous population also emerged. Urban space control in favor of foreign goals and priorities became a common practice in the Americas. The "Plaza Mayor" in Mexico City is a prime example of public space design that served as a focal point to address the transformation of public spaces in Mexico.

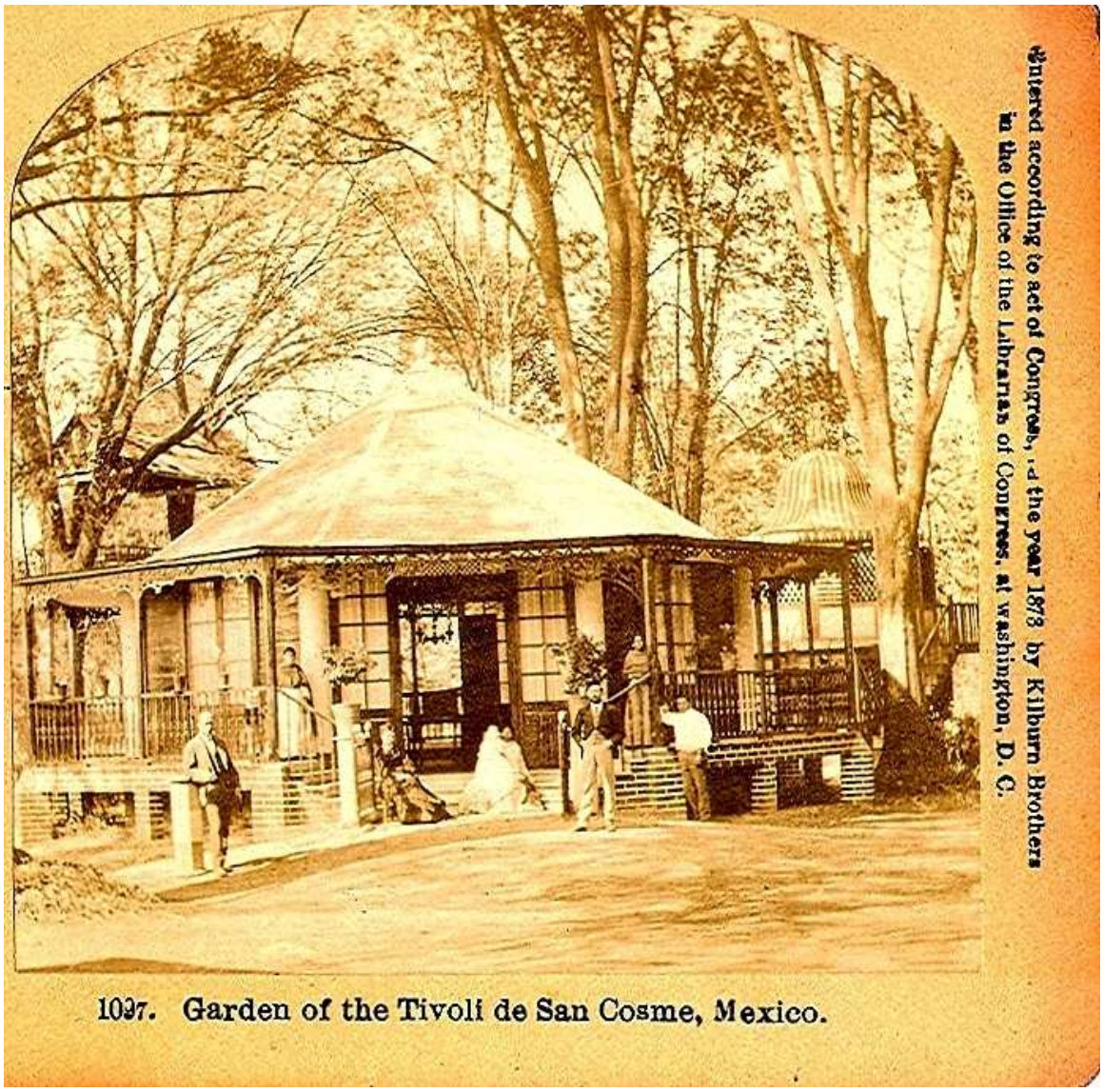
The *Plaza Mayor* served as a grey public space, without any vegetation, until 1840 when the mayor of a recently independent Mexico City, Jose Mejia, ordered the planting of *Fresnos* and *Truenos* in the periphery of the plaza. This radical change in the urban landscape was welcomed by its dwellers and empowered the Mexican government to foster the creation of more public spaces with vegetation for the people to walk and rest. During this time, *tivolis*—open spaces designated for recreation and leisure for the most part accompanied with vegetation— proliferated in the city. Nevertheless, *tivolis* (Picture 1 and 2) were not public all the time and its management was funded with private resources, often times from foreign tobacco and beer companies established during the last five decades of the 19th Century (Sorensen et al., 1998). It is important to underline that public spaces in Mexico City continued to be segregated during the transition period from the 19th to the 20th Century. Given the fact that foreign companies invested money in creating and preserving aesthetically pleasing spaces nearby their factories or shops. most of early green public green spaces like parks and *tivolis* concentrated in the wealthy part of the city and for the exclusive use of residents in that area. Green public space photographs from the late 19th Century Mexico City show lush vegetated spaces used by aristocrats wearing typical *haute couture* garments of the epoch with no indigenous servants in sight. Green publics spaces in this period were most definitely not public, but exclusive, privately managed, luxurious urban amenities.

Picture 4. Tivoli Garden in the San Cosme Borough, Mexico (circa 1873)



Source: National General Archive (in Spanish, *Archivo General de la Nación)*

Picture 5. Kiosk at Tivoli Garden in the San Cosme Borough, Mexico (circa 1878)



Source: National General Archive (in Spanish, *Archivo General de la Nacion*

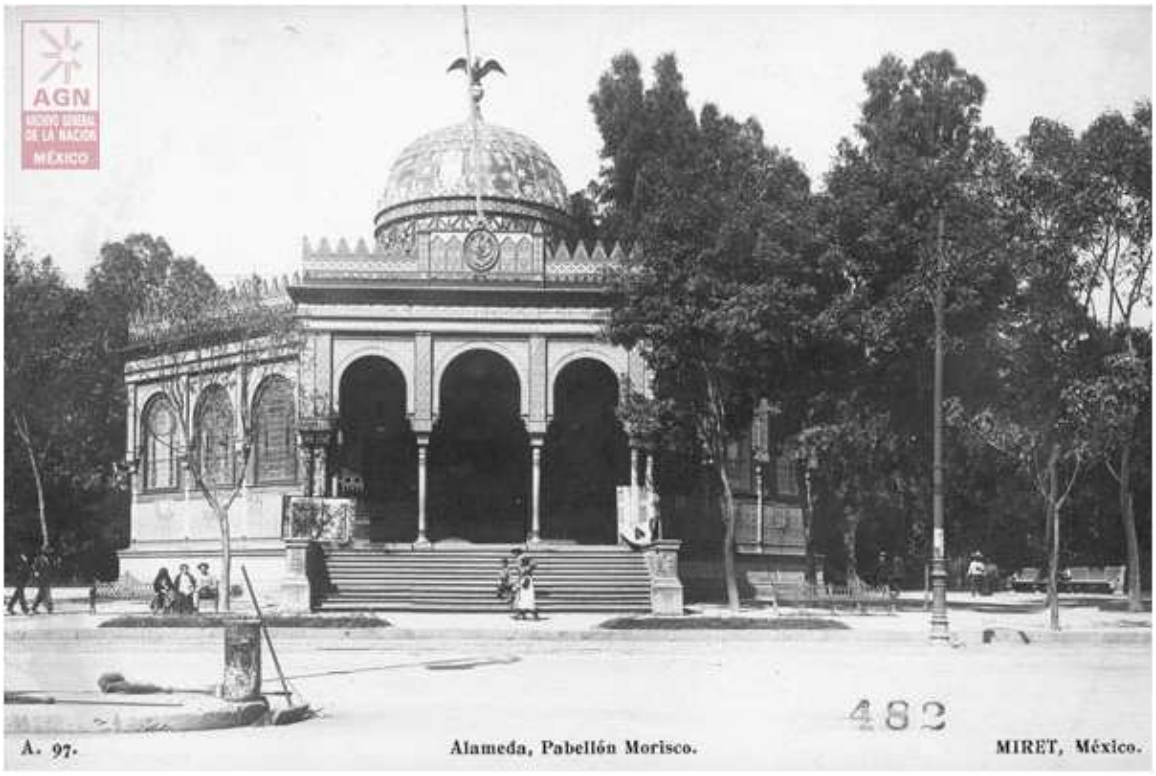
Twenty years after the independence from the Spanish crown, the French empire seized control of Mexico. The French occupation had a particular impact in the urbanization of Mexico City's public space. The Chapultepec forest was declared property of the French empire and the Chapultepec Castle construction started to serve as the residence for Maximiliano de Habsburgo, French emperor of Mexico (Moerer, 2013). The creation of the

Chapultepec Castle galvanized European urbanization practices in Mexico City; Maximiliano ordered the construction of gardens to adorn the castle in order to make the space more French and to remind him of his native country (Flores, 1947).

Gardens became an urbanization trend during Maximiliano's ruling in Mexico City. Lush and green urban spaces replaced desert plazas mimicking the traditional development of European cities. During the "Second French Empire" in Mexico, when emperor Carlota governed Mexico City (Davis, 2004), another green public space historical landmark emerged, the Alameda Central (Picture 3). The Alameda Central became the largest vegetated area in the city and served as a template for the construction of many urban parks around Mexico City (Benites, 1984). In this sense, the Alameda Central revolutionized public space in Mexico City.

The intention of the French empire was to present the park as a reward for the Mexican people living in the capital. The project, however, was actually intended to ease tensions between Mexican and French authorities during the last years of French occupation in Mexico (Harding, 2008). The idea of "awarding people with a park" stemmed from the English Crown decision of opening royal grounds— traditionally used for hunting by aristocrats— to the general public in cities where industrialization was eroding the quality of life and generating social unease.

Picture 6. Pabellón Morisco, Alameda de Santa María la Ribera, 1908



Source: National General Archive (in Spanish, *Archivo General de la Nacion*). Property of Miret, F. (1908) Ciudad de México.

During the last decade of the 19th Century and the first twenty years of the 20th century, Mexico City's green public space changed substantially. The Porfirio Diaz dictatorship lasted nearly 30 years (between 1876 and 1911); Diaz administration established urban space legacies that frame the physical and cultural nature of green public spaces in Mexico City today. Diaz was obsessed with the French urbanization style. The planning, architecture and governance of Mexico City followed European, and particularly French, standards in this period. During the Diaz administration, all plazas from major cities were transformed into gardens or parks and the addition of kiosks as hubs for urban culture proliferated all over

Mexico (Wakild, 2007) (Picture 4).

As discussed in chapter 3, during the "Porfiriato" —the period of time when Diaz ruled— two governmental actors were particularly important for the creation of green public space in Mexico City, Miguel Anguel de Quevedo and José Yves Limantur. Both of them were in charge of the greening of Mexico City and are commonly regarded in scholarly accounts of Mexican parks as the original designers of most green public spaces in the Mexican capital. Quevedo directed the first project of remodeling Chapultepec Castle in harmony with its forest and to connect it to other parks and green public areas in the city. Limantur was in charge of the creation of the first public urban parks in Mexico City (for a detailed account of the projects see Wakild, 2007). At least a dozen parks were the direct responsibility of Limantur and Quevedo during this period. Some of them still exist in the city. Political figures in charge of urban planning, such as Limantur and Quevedo, had absolute freedom to determine the location and attributes of green spaces in Mexico City. Notwithstanding their undeniable aspiration to create a modern, more European Mexico City, they failed to allocate resources for this endeavor in a homogeneous way. They concentrated their efforts in pleasing president Diaz; most projects dealing with sanitation, parks or public space in general were located in strategic areas of the city that would decorate the Mexican capital in order to project a certain level of modernity. In contrast, few projects took place in marginal areas of the city during this administration (Wakild, 2007). Hence, collective environmental or social needs were generally neglected.

Picture 7. Plaza de Santo Domingo transformation to a forested area, 1898

Source: National General Archive (in Spanish *Archivo General de la Nacion*). Property of Briquet, A. (1898) Ciudad de México.

In the course of the Mexican Revolution (1910-1920) and during the late 1920s, little attention was given to the urban infrastructure in cities. Parks and green public spaces were neglected and in some cases destroyed. Nevertheless, in 1927, some upper-class neighborhoods as *Hipodromo Condesa* and *Roma* enjoyed the creation of the first urban and pocket parks, such as the Parque San Martin (now Parque Mexico) and the Parque España. Also during this time, the Mexican Forestry Society (in Spanish, *Sociedad Forestal Mexicana*) was created to stop housing policies that promoted the destruction of green public areas and water shortages during periods of drought. According to Martinez (1991), during the 1930s

from the original 22,000 ha of forest in the south of Mexico City more than 15,000 were lost to housing and industrialization projects.

During the Lazaro Cardenas administration (1934 to 1940), Mexican cities entered in a modernization process that resulted in major re-forestation projects. In 1935 the Autonomous Department for Forests, Hunting and Fisheries (in Spanish *Departamento Autonomo Forestal y de Caza y de Pesca*) was created. According to official documents, this department was responsible for the creation of more than 16 national parks in no more than 5 years, including: *Iztaccíhuatl Popocatépetl* National Park, *Insurgente Miguel Hidalgo y Costilla* National Park (also known as *La Marquesa* National Park) and *Nevado de Toluca* National Park. Thirty-five national parks and a total of 3547.01 km² of forest were declared protected areas during this time. However, only 8 parks and 77 km²of vegetated areas were set aside for its environmental value in Mexico City (see table 2).

Table 6. National Parks in Mexico during the Modern Era (1934-1940)

National Parks in Mexico durign the Modern Era (1934-1940)			
Name	Year	Area (km²)	State
Desierto de los Leones National Park*	1917	15	Distrito Federal (Mexico City)
Iztaccíhuatl Popocatépetl National Park	1935	398	Estado de México (Also Morelos y Puebla)
Cerro de Garnica National Park	1936	9	Michoacán
Cumbres del Ajusco National Park	1936	9	Distrito Federal (Mexico City)
El Gogorrón National Park	1936	250	San Luis Potosí
El Potosí National Park	1936	20	San Luis Potosí
Fuentes Brotantes de Tlalpan National Park	1936	1	Distrito Federal (Mexico City)
Grutas de Cacahuamilpa National Park	1936	16	Guerrero
Insurgente Miguel Hidalgo y Costilla National Park (La Marquesa National Park)	1936	15	Distrito Federal (Mexico City)
Lagunas de Zempoala National Park	1936	47	Morelos (And Estado de Mexico)
Los Marmoles National Park	1936	231	Hidalgo
Nevado de Toluca National Park	1936	467	Estado de México
Volcan Nevado de Colima National Park	1936	96	Colima
Benito Juárez National Park	1937	27	Oaxaca
Cerro de Las Campanas National Park	1937	0.58	Querétaro
Cofre de Perote National Park	1937	117	Veracruz
El Tepeyac National Park	1937	15	Distrito Federal (Mexico City)
El Tepozteco National Park	1937	232	Morelos
Lagunas de Chacahua National Park	1937	141	Oaxaca
Molino de Flores Nezahualcóyotl National Park	1937	0.5	Estado de México
Pico de Orizaba National Park	1937	197	Veracruz
Xicoténcatl National Park	1937	6	Tlaxcala
Barranca del Cupatitzio National Park	1938	3	Michoacán
Cañón del Río Blanco National Park	1938	556	Veracruz
Cerro de la Estrella National Park	1938	11	Distrito Federal (Mexico City)
El Histórico Coyoacán National Park	1938	5	Distrito Federal (Mexico City)
El Sabinal National Park	1938	0.08	Nuevo León
La Malinche National Park	1938	457	Puebla
Lomas de Padierna National Park	1938	6	Distrito Federal (Mexico City)
Los Remedios National Park	1938	4	Estado de México
Cumbres de Majalca National Park	1939	47	Chihuahua
Insurgente José María Morelos y Pavón National Park	1939	43	Michoacán
Sacromonte National Park	1939	0.45	Estado de México
Bosencheve National Park	1940	104	Michoacán
Los Novillos National Park	1940	0.4	Coahuila
	Total	3547.01	

Source: National Commission of Protected Natural Areas. Compiled by author.

From the 1950s to the 1970s green public spaces suffered significant transformations. According to Sosa (1954), author of the only urban flora inventory done during that period (*Gobierno del Distrito Federal*, 2000), several green public spaces or "woodened areas' were eliminated in most "developing areas" of the city. Regardless of the lack of detailed information regarding the exact location of those lost green public spaces, the *Mexico Forestal* Journal, reported that civil groups denounced the dispossession of these spaces and demanded the city's administration to provide more parks and gardens. This could be the historical reason that explains the creation of the most ambitious green public space project in the urban-environmental history of Mexico City: the "new" Chapultepec Park. In 1964,

The Distrito Federal administration built the so-called "2nd section of the new Chapultepec Park" in an area of 1,200,000 m^2 located at the west of the original Chapultepec Forest. This project is a key illustration of the institutional approach to urban environments in the modern era in Mexico. The 2nd section of the Chapultepec Park included two large artificial lakes totaling 92 000 m^2, a modern amusement park á la Six Flags (Photo 5), a circuit of luxurious restaurants, a zoo and two museums. The Chapultepec Park project was created following commercial guidelines and objectives, yet, it was far from prioritizing environmental or social concerns. The project was financially successful and a 3rd section was inaugurated in 1974. This section of 242.9 hectares— significantly smaller than the original extension of the forest and the second section— is today an ecological reserve for various species of flora and fauna (according to the Probosque Chapultepec Trust; in Spanish, *Fideicomiso Probosque Chapultepec*). The flagrant commodification of Chapultepec's surroundings resulted from governmental efforts to make Mexico City a world-class capital, a place where investors could feel safe and interested in starting new businesses (Delgado, 2000).

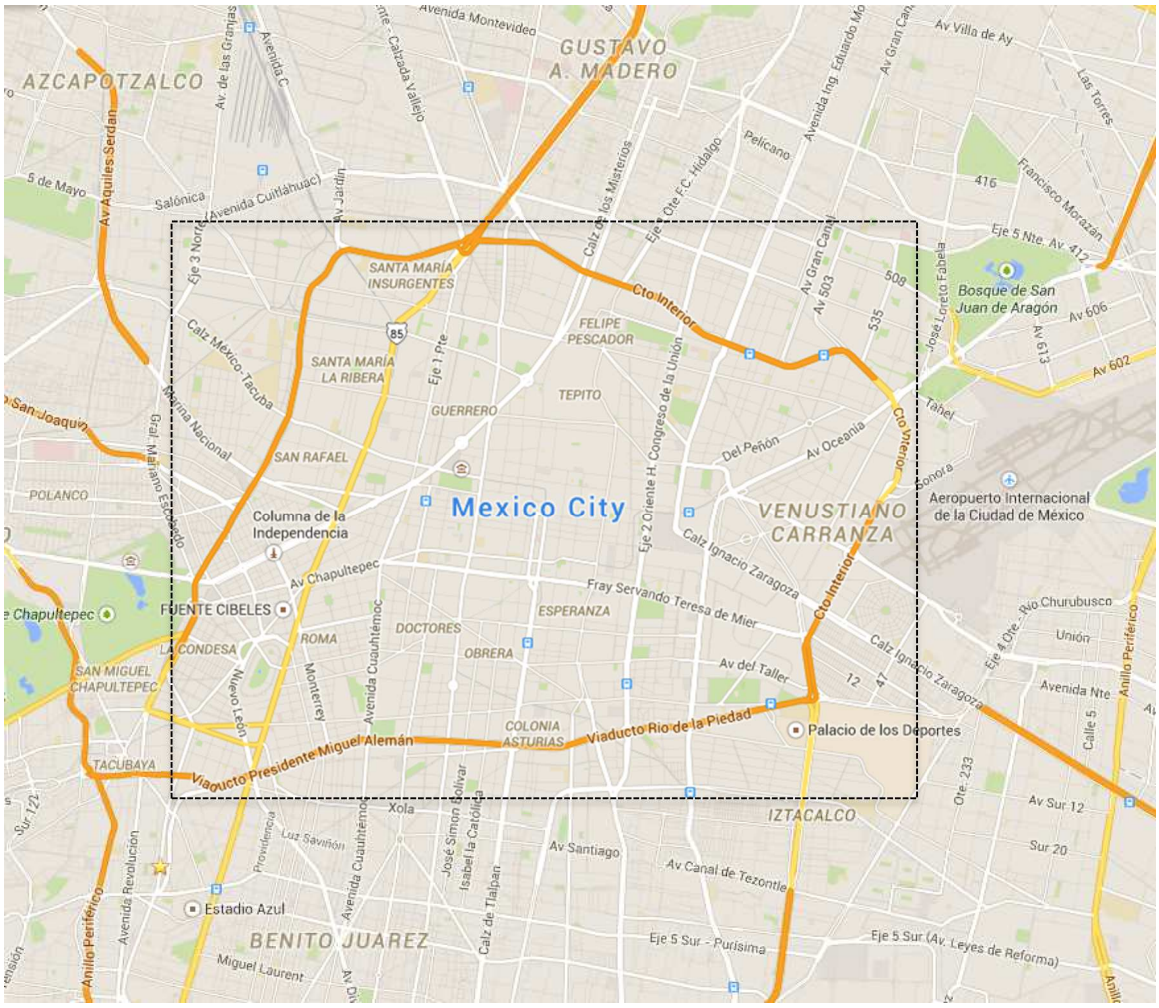
Picture 8. Inauguration of the Chapultepec *Feria* (Fair), 1964.

Source: *Feria de Chapultepec cumple 50 años de diversión* « 98 Aniversario // El Universal," 2014.

Also in 1964, the San Juan de Aragon Forest was inaugurated. The project included 275 hectares of forest, two artificial lakes and a mini-train free for children. This park is located in a marginal zone of the Mexican capital and its construction was prompted by popular demands for a big park like Chapultepec outside the wealthy area. Aragon, an old neighborhood located in the east of the city, welcomed the project as an attraction for low-income families in the area. However, since those living in poor boroughs could not afford expensive amusement parks and restaurants, those features of the new park decayed rapidly after the local government failed to maintain them.. The Chapultepec and Aragon Parks are useful examples of the political ecology of green public spaces in Mexico City. Both parks had a significant impact in the urbanization of the Mexican capital and the social production of urban nature.

Moreover, during the late 1960s and early 1970s a large roadbuilding project had profound environmental effects in Mexico City and resulted in an institutional and environmental reconfiguration that has endured until today. The construction of the *Circuito Interior* (Inner Circuit or Inner Loop), a project constituted of several "axis" (in Spanish, *ejes*) was planned to connect the entire city (Map 1).

Map 9. *Circuito Interior* Project, 2010



The initial phase of the project was inaugurated in 1961 by the president Adolfo López Mateos (from 1958 to 1964) and Mexico City's regent Ernesto P. Uruchurtu; the original project culminated in 1977. According to Espinosa López, (2003) the Inner Loop project's main "modernization" feature besides its transportation purposes included piping three major rivers in the metropolitan area: Consulado, Churubusco y Piedad. The project was assigned to architect and "visionary urban planner" Carlos Contreras (Legorreta, 2002), creator of the 1925 Federal District Master Plan (in Spanish, Plano Regulador del Distrito Federal). Contreras knew that tubing the rivers signified an unprecedented engineering enterprise in Mexico and a particularly challenging social and political task given that 39 low income neighborhoods were located near the rivers (Paramo, 2011). The project was originally accepted and funded by the *Distrito Federal* (DF) government in order to provide better infrastructure to connect the expanding airport with the rest of the city. Mexico City's regent Uruchurtu was "known for both his emphasis on the beautification of the public spaces of the city as well as his draconian crackdowns on poor, rural migrants to the capital" (Jordan, 2013: 12). Slums surrounding the *Consulado*, *Churubusco*, *Piedad* rivers and the *Texcoco* river basin were destroyed as "significant social confrontations with the physical manifestations of state control took place in the daily, lived experiences of city residents" (ibid).

Picture 9. Mexico City airport development circa September 1959

Source: *Archivo General de la Nacion* (image 15360) in Excelcior, 2011.

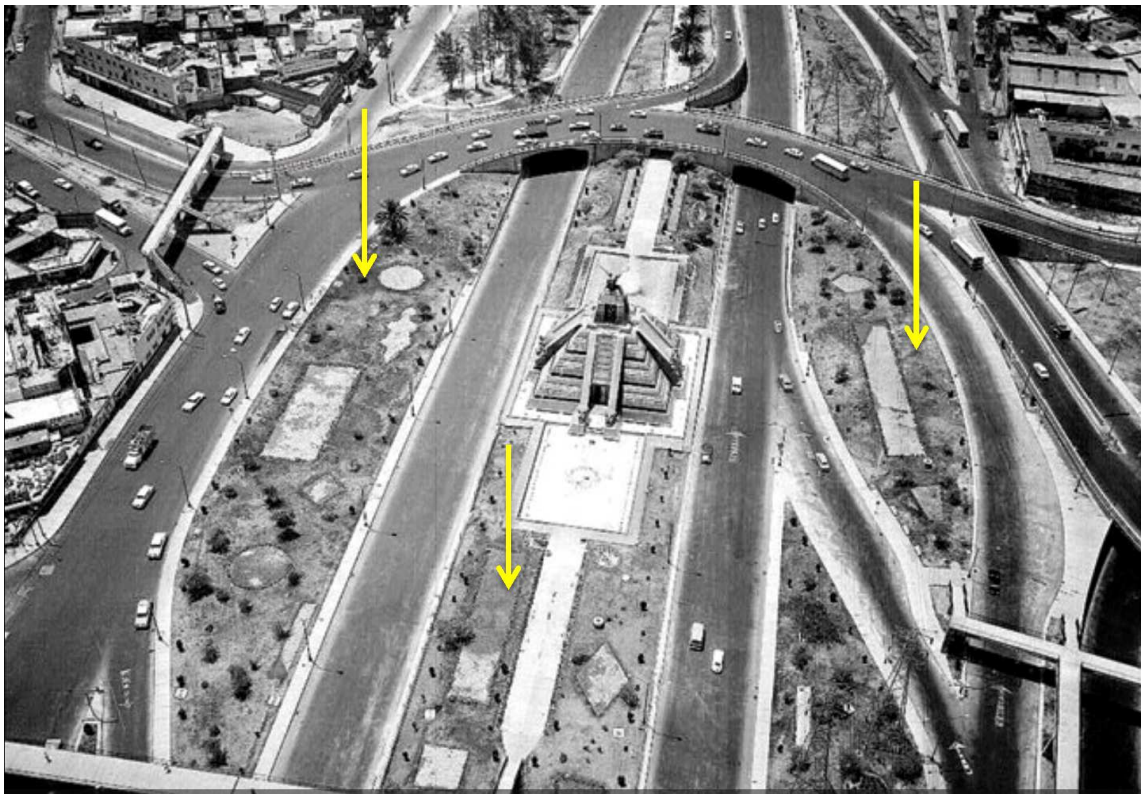
For the first time in the history of Mexico City governance, the challenge to create a roadbuilding project encompassed environmental and social issues rather than focusing solely in transportation. Legorreta (2002) analysis of Contreras "metropolitan vision" in the creation of infrastructure showed that:

"*Actually, [Contreras] metropolitan vision was broader, because regardless of ring roads, [his vision] posed the creation of industrial zones and major parks, neighborhood regeneration, a new airport and areas of ecological reserves that should, according Contreras , have been preserved as such. However, history was different."*

The Inner Loop project, with a total of 42-km-long urban freeway, also resulted in severe

deforestation of native species (Espinosa López, 2003). Concomitantly, citizens in the city felt that the project's environmental costs were too high and that the government was obligated to amend the damages (Jordan, 2013). For this reason Contreras and Uruchurtu promoted the concept of Park-Ways or Park- Roads (in Spanish, *Parques-Via*). The original idea was to ease social demands of urban reforestation without compromising any roadbuilding projects; therefore, they proposed to create garden-like spaces within the roads. Those spaces dividing roads served to plant flowers and some threes (Picture 7). The illusion of a modern and environmentally friendly approach to urban infrastructure was achieved because of the "beautification" of public works.

Picture 10. *La Raza* Bridge part of the Inner Loop Project and its green spaces circa 1970



Source: *Archivo General de la Nacion* in Excelcior, 2011.

Notwithstanding the local governments' efforts at the time, the green infrastructure suffered from maintenance negligence; it started to decay and eventually disappeared (Espinosa López, 2003). This explains the revitalization project of the new "*Circuito Bicentenario"* in 2010 (also commemorating the second anniversary of the Mexican Independence). A program of manual irrigation started coupled with an assessment of the flora and fauna that survived in the public space (GDF, 2009). Yet, Universal (2009) reported that most of the $181 (MXP) millions were invested in repaving roads, building bridges and remedying conflicting intersections with malfunctioning transit lights.

In addition to the urban transformations that this project yielded, an institutional reconfiguration took place. Tensions between populations to be displaced and the DF government resulted in the impromptu creation of socio-environmental institutional system. In 1970, for the first time, 16 Burroughs[46] of Mexico City were integrated into a single governance body and the Department of the Federal District (DDF) started to manage issues affecting the entire city (Luna, 1996). Tackling environmental issues, for example, was one of the main inter-borough priorities. Thus, in a sense, the Inner Loop project also created communication pathways among environmental and urban planning institutions in Mexico City. In the following section I describe the development of socioenvironmental governance in Mexico City against a background comprising of these.

Environmental Urban Governance in Mexico

As discussed in the last section transport played an important role during the 20th century in the transformation of Mexico City environment and landscape. The urban and peri-urban

[46] The Organic Law of the DF Department modified the administrative division of the city the 29th of December, 1970. The new law included four new boroughs into the metropolitan area: *Cuauhtémoc, Venustiano Carranza, Miguel Hidalgo* and *Benito Juárez*

road building projects resulted in a significant loss of forests— a common occurrence in large metropolitan areas (Gandy, 2003)— however, Mexican authorities inexperience with large-scale urban infrastructure projects also resulted in a notable reconfiguration of its socio-environmental institutional arrangements. Notably, institutions originally appointed to manage urban infrastructure and its impact on environments were all rooted in a rural context and featured a rural approach towards environmental issues[47]. In the particular case of Mexico City, in order to avoid excessive environmental destruction and to contain social distress generated after low-income population displacement at project sites, new laws regarding urban developing and planning were established by federal institutions responsible for natural resources and rural development. For example, in 1971, the Commission for Natural Resources and Rural Development (in Spanish, *Comision de Recursos Naturales y Desarrollo Rural*, CORENA) developed the first documented environmental policies for Mexico City (the Federal Law to Prevent and Control Contamination, in Spanish, *Ley Federal para Prevenir y Controlar la Contaminación).* CORENA was constituted over institutional foundations of the Coordinating Committee for Rural Development Commission (in Spanish, *Coordindora de Desarrollo Rural*, COCODER) and the Commission for Agricultural Development Coordinator Commission (in Spanish, *Comisión de Desarrollo Agropecuario*, COCORA). It is important to highlight that from 1971 to 1987 none of the documents published in the Official Gazette of the Federation (in Spanish*, Diario Oficial de la Federación*) made reference to urban environments or urban nature. In contrast, all attention was concentrated in legislating and managing the recently approved conservation land in the outskirts of the city after the 1982 Federal Environmental Protection Law (in Spanish, *Ley*

[47] Carabias (1988) argued that this institutional mismatch emerged due to an initial urgency to protect and develop the agricultural sector in Mexico and a historical lack of urban policies for Mexican Cities.

Federal de Protección al Ambiente)

Given the fact that federal rural institutions were originally responsible for urban environmental governance of cities, Mexico City's administration faced the challenge to reconcile two governance approaches traditionally entrenched in rural policies: the productive versus environmentalist (Leglise, 2003). In on hand, the productive approach favored agriculture, a fundamental economic driver of the Mexican economy before international trade agreements collapsed the market for domestic goods(Gallagher, 2004). Agriculture was subsidized and fostered to achieve "modernization" without environmental restrictions until 1986 when the Forestry Law (in Spanish, *Ley Forestal*) was reformed. Changes to the law included the incorporation of concepts such as integrated management of forest resources, forest zoning, forest concessions technical services and other new institutional arrangements like the creation of multispectral committees of roads. This view was supported and heavily sponsored by the Mexican agro-business industry (Thacker, 1999). On the other hand, the environmentalist approach advocated a conservationist and socially oriented view that would regulate production in rural areas. The environmentalist approach succeeded in the creation of institutions such as the Secretary of Agriculture and Livestock (in Spanish, *Secretaria de Agricultura y Ganaderia*) and the Directorate of Rural Development (in Spanish, *Direccion de Desarrollo Rural*), both in 1991. These distinct approaches generated tensions among bureaucrats, political parties, the private sector and the general public (Leglise, 2003), however, none of the approaches dealt directly with urban contexts. The lack of proper laws or at least a solid political approach capable of accounting for urban environmental issues has been causing a disconnection between the goals and methods used to govern urban environments.

An instance of a failed environmental program initiated by CORENA was its urban nurseries initiative (1979-1983). The program was intended to reforest public spaces in Mexico City that suffered environmental degradation after projects like 'Inner Circuit'. In 1979 the Netzahualcoyotl nursery started operations and produced 30 million trees, becoming the largest urban nursery in Latin America (CORENA, 1982), but reforestation efforts within the city were ineffective. Martinez (1991) reported that differences in soil composition, temperature and contamination levels restricted the possibilities of reforesting the entire metropolitan area of Mexico City with the variety of species[48] provided by the nursery. He estimated that than 60% of the trees originally planted did not survive. Nevertheless, the Netzahualcoyotl nursery continued to operate as a source for urban reforestation. However its resources started to be siphoned into the urban periphery—particularly mountain areas adjacent to protected areas and high-income neighborhoods. Although the Netzahualcoyotl nursery was originally intended to mitigate environmental damage from urban infrastructure development, the nursery started to produce ornamental species with the main objective of adorning the city. There is an important distinction between supplying a sizable number of trees capable of providing environmental services and growing flowers to embellish avenues, boulevards and highways with the sole intent of making the city attractive for high-income populations. The fundamental point is that during the 1970s, a crucial decade for the creation of environmental institutions in Mexico, urban contexts were not approached properly. It is hard to comprehend how Mexico City's administration did not reckon that there was an urgent need to understand the ecological characteristics and needs within the city before starting a reforestation project. Resources

[48] Preponderant species in the Netzahualcoyotl nursery included native and exotic Pines, Cedars, Eucalyptus, Casuarinas, Pirus, Ash, Oaks and Thunders (Mexico City's Government, *Gobierno del Distrito Federal*, 2000).

were misspent in trying to address an urban environmental issue owing to the fact that the project was not contextualized appropriately. As might be expected, the nursery suspended its regular activities after the reforestation fiasco and the policies for reforestation changed against social welfare and in favor of economic gain that would "help the nursery to survive". The Netzahualcoyotl nursery reported in 1987 a total annual production of 10 million trees, 20 million fewer than its original output (Martinez, 1991).

Socio-environmental Institutions in Mexico City

The Mexico City Environment Secretariat (in Spanish, *Secretaria del Medio Ambiente del Distrito Federal,* SEDEMA) has been governing its urban environments for less than 10 years. The SEDEMA was created in 1997 after the establishment of the newly integrated Ministry of Environment, Natural Resources and Fisheries (in Spanish, *Secretaría de Medio Ambiente, Recursos Naturales y Pesca* , SEMARNAP) in December 1994. It is no coincidence that SEMARNAP was created the same year that the North American Free Trade Agreement (NAFTA) was ratified and set to operate in Mexico. According to Sánchez (1991) there was major distress among local administrations, predominantly in the north of Mexico, given the fact that several multinationals were ready to settle *maquiladoras* and other industrial infrastructure in border cities of the country. The local and federal governments knew that industrial environmental deterioration coupled with an increase in the exploitation of natural resources could represent a serious environmental threat. Official documents, such as the 1988 General Law of Ecological Equilibrium and Environmental Protection (in Spanish, *Ley General del Equilibrio Ecológico y la Protección al Ambiente* (LEEGEPA), state that the main objective of the SEMARNAP was to articulate proper connections between economic goals and environmental and social needs. Hence, neoliberal features of NAFTA had a profound

effect in the environmental governance of Mexico due to demands that the USA congress made in terms of making policies "flexible"(Popocatl, 2004). As Husted & Logsdon (1997) explained:

"NAFTA's supporters tended to separate trade issues from environmental issues and advocated that NAFTA be evaluated only as a trade agreement (p. 25). Unfortunately, the NAFTA-induced leap in environmental regulation and enforcement has not yet been sufficient to create significant changes in overall environmental quality (p. 42)".

Husted & Logsdon enphasized the fact that Enrnesto Zedillo, president of Mexico at the time (1994-2000), decided to create an environmental institution capabable of assessing envrionmental damage that would occur once the border opened for trade. Yet, as reported by Krugman (1993), NAFTA did hurt the environment as industry moving south took advantage of lax Mexican environmental laws[49]. NAFTA is a perfect example to illustrate the intimate relation that economic governace has with the production of environments. The influnce of neoliberal economic governance is so pervasive within the Mexican state that socio-environmental institutions are starting to transmute into a new breed of organizations forced to place economic needs above enviromental goals and regulations. This is how state environmental instituions, guided by neoliberal principles, commenced to device mock governance mechanisms that could prioritize corporate economic goals. A quintessential example of this phenomenon is the concept of "sustainable development" (Jessop, 2002; Raco, 2005).

Biologist Martha Niño, Director of the Urban Sustainability for the Ministry of the

[49] For a detailed account on the environmental dimension of the negotiation processes and all cases presented as an environmental international injustice see Anderson (1993) and Gallagher (2004)

Environment (in Spanish, *Secretaria de Medio Ambiente*, SEMARNAT) responded to questions regarding green public space management within a neoliberal context. After serving as a governmental official in charge of urban environmental management for over 20 years, she asserted that the main issue with Mexico City's environmental policy is its historical exclusion from the urban realm. According to her statement:

" Historically, environmental policies have been paying all attention to limit or regulate economic activity in the city. Space itself— or the urban environment, if you will— has never been the focal point. Space in this context has become an obstacle: it is an issue to have open or vacant spaces in Mexico City. The protection of the environment is in fact a sub product that results after economic regulation. That is to say that environmental policies are not about the environment but about economic activities that may or may not result in environmental deterioration. Although, the environment is not separated from any economic activities, it is evident that the priority has been established a long time ago. Now, if you try to introduce concepts like "sustainability"— that should entail social development along with environmental protection— you will notice an structural barrier that is incapable to put first the environment or society; at the end it is all about economic activities and capital accumulation"

The substitution of environmental and social governance goals for economic and financial objectives is institutionalized in Mexico City. A structural barrier exists that hinders the proper development of policies with a social and democratic character in Mexico City. Environmental protection policies have become "economic byproducts" contingent upon guidelines that do not favor or even account for environmental needs. Moreover, Niño commented on the unbalanced interface between conservation land, productive land and urban land. The lack of explicit urban policy is, according to her statement, the main impediment for solid environmental regulation and, arguably, the main driver of

environmental and social injustice and decay:

"The problem with political economy is indeed the fact that it works as a force that determines, for example, the land's uses. However, the main problem I have seen in these years is the lack of an urban policy, capable to determine how and why we will develop our cities. Urban policy should be capable to optimize the interface between conservation land, productive land and urban land. But as I told you before, the focus is productive land. Nothing else. Therefore, there is no balance. And even worse, no clear limits to regulate productive processes"

Private and public use of space in urban contexts has become deeply unequal. There has been a systematic loss of spaces for public purposes. In Mexico City, for example, there is a noticeable lack of spaces capable of providing environmental and social services; the city is simply losing public spaces, space in the city is structurally oriented to serve private needs.

During my interview with Niño, a federal governmental officer, the presence of economic concepts in her answers was recurrent. Her standpoint and approach to policy had a top down character and she situated her ideas in a larger scale of economic, environmental and social contexts. In contrast, Rosa Maria Gonzalez (director of the General Direction of Urban Forests and Environmental Education for the Federal District; in Spanish, *Dirección General De Bosques Urbanos y Educación Ambiental del Distrito Federal*) answers concentrated on the local scale. While questioning her in regards to urban environments she focused on the ecology of the city and described the local conditions as "disconnected from the national context". For example, she explained the green public space deficit in Mexico City is a consequence of the "*distinct ecology of the city*". She also assured me that the institutional objective of providing green publics spaces to all Mexican dwellers was "*not only environmental but predominantly social*". Gonzalez provided an example of how green public spaces have

been proving to be catalyst for social cohesion; she stated:

"Pocket Parks are an illustrative example of how people can contest pressure from business owners and capital investors in their quest for success (sic). People get together to demand public spaces in areas of the city where formal or informal commerce and violence has surged. The government has a degree of accountability, but in the instance of green public spaces, the responsibility will always be shared"

Gonzales maintained that the local administration efforts to serve areas of the city where green public spaces are scarce depend on the local population's commitment to demand and protect them. Conversely, Adriana Bermeo, director of the Citizens Defending the Park (in Spanish, *Defensa Ciudadana del Parque)* a renowned environmental NGO, stated: "Mexico City exists as a neoliberal city; money lords are always seeking spaces to invest and accumulate more money. So, we live in a place for them to make money, not for us to live"(personal communication, 2014). Bermeo has been involved in several environmental campaigns since 2000 and she highlighted the fact that the general population has been systematically ignored and, more recently, blamed for environmental issues in the city. Bermeo's and Gonsalez's statements are similar in the sense that they both situate residents as important actors in the environmental-political arena.

Dr. Francisco Dorantes Diaz, Legal Director of the Environmental and Land Use Planning Attorney office for the Distrito Federal (in Spanish*, Procuraduría Ambiental y del Ordenamiento territorial del Distrito Federal*, PAOT) provided further insight into institutional developments intending to integrate population's needs into the formulation of environmental public policies. Dorantes stated:

" One of the PAOT's original objectives was to join the urban and environmental policies. It was

fundamental for us to incorporate legal strategies in the Distrito Federal to tackle an increasing number of socio-environmental injustices. PAOT was committed to become the first decentralized institution in Mexico City that could provide citizens with legal tools to defend their environment. And in 2011 we succeeded. In that year a constitutional reform was passed to protect social and environmental collective civil rights. However, there are only a few institutions like the PAOT in Mexico and we need them to exist in every state. Only then, we will be capable to provide citizens an alternative to denounce and challenge negative practices against their environments"

The PAOT is a unique institution that has become the most important environmental entity responsible for the democratization of urban space use. In 2007, PAOT started to receive citizens' "denouncements" regarding 13 different environmental themes. According to Dorantes, peoples' response and initiative was overwhelming. In 2007, a total of 1197 environmental complaints were filed and by 2010, the number reached 2366. In Table 3 below we see how complaints regarding urban green areas[50] are the third most common after 'noise and vibration[51]' and urban land use (Table 3).

[50] The textual translation to English for PAOT's feature "Areas verdes en Suelo urbano" is "Green Areas on Urban Soil/Land". I'll refer to this feature only as "urban green areas".
[51] According to the PAOT, "vibrations" refers to the "non-natural movements generated by heavy vehicles or machinery"

Table 7. Environmental Complaints to PAOT 2007-2010

Themes	2007	2008	2009	2010	Totals
Water	38	41	52	69	200
Air	46	34	38	57	175
Animals	18	36	48	56	158
Canyons	19	13	16	19	67
Visual Contamination	0	2	3	3	8
Energy	1	1	1	0	3
Gases, Odors And Vapors	30	64	51	62	207
Areas Of Environmental Value	4	5	3	25	37
Protected Natural Areas	10	10	3	5	28
Urban Green Areas	301	321	284	389	1295
Waste	84	114	144	113	455
Noise And Vibration	232	252	326	342	1152
Soil Conservation	33	26	32	736	827
Urban Land Use	381	516	476	507	1880
Total	1197	1436	1477	2366	6476

Source: PAOT, 2013. Compiled by author.

It is important to highlight that complaints regarding 1) Areas Of Environmental Value, 2) Protected Natural Areas and 3) Green Areas in Urban Soil have a noticeable concentration in wealthy boroughs of the city (Map 1). *Cuauhtémoc*, *Benito Juarez* and *Tlalpan* concentrate the highest number of complains (Table 4). Dorantes also addressed the issue of access to environmental justice; he commented that only those boroughs with high levels of education are active in denouncing environmental violations. Moreover, given the fact that PAOT's offices are located in the affluent area of the city, it is easier for people to visit the institution to present a complaint. This is a classic case of procedural environmental injustice owning to the fact that despite the tremendous effort that PAOT has been doing for the past decade, the complaint program remains inaccessible to marginal populations. Nevertheless, Dorantes also mentioned that they were already preparing a new "mobile project" to visit areas in the city where it is known that environmental injustices have been taking place.

Map 10. Environmental complaints documented by PAOT 2007-2010

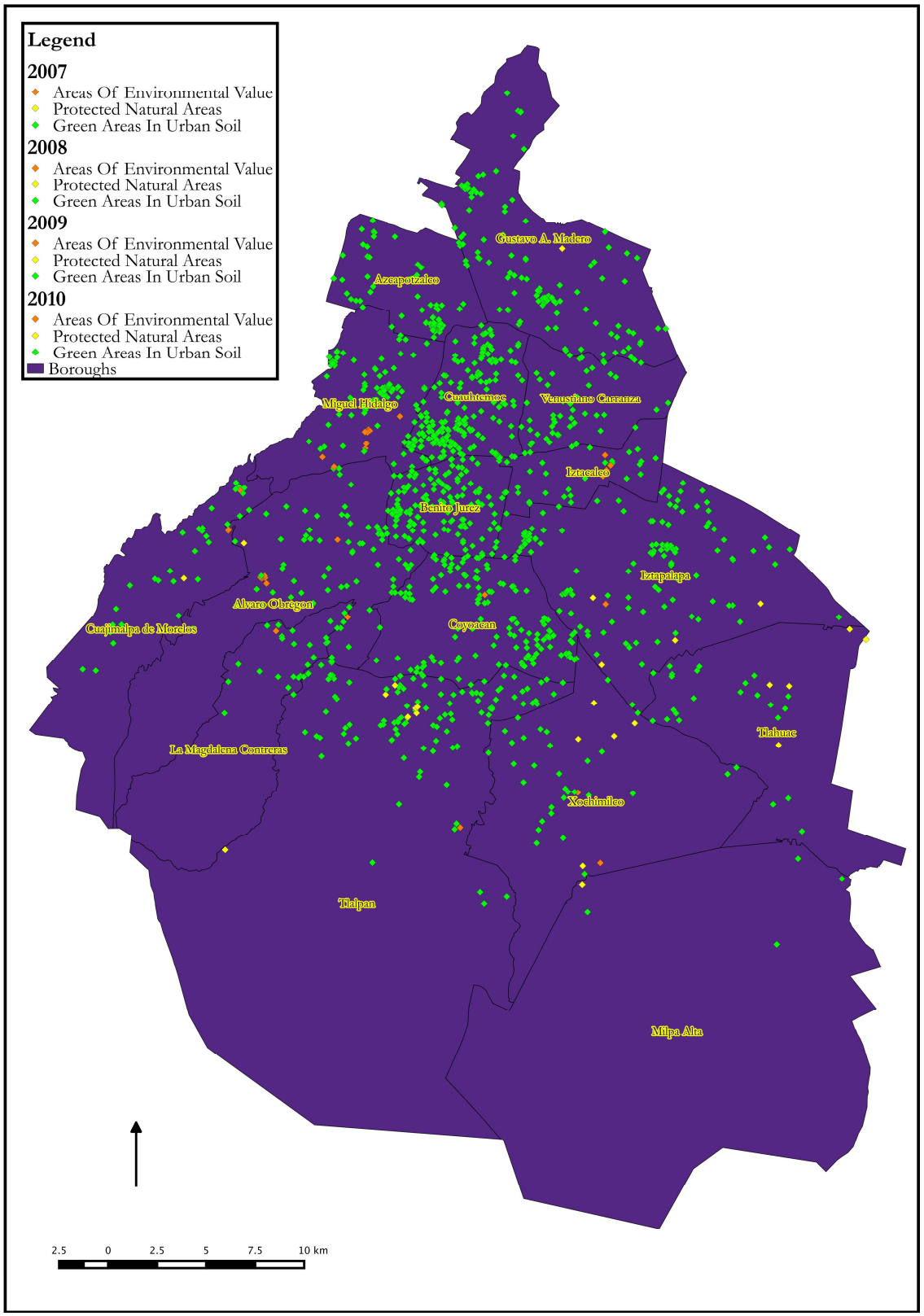


Table 8. Concentration of environmental complaints documented by PAOT 2007-2010

Borough	2007	2008	2009	2010	Totals
Alvaro Obregon	84	144	106	186	520
Azcapotzalco	43	67	74	112	296
Benito Juarez	132	134	172	193	631
Coyoacan	106	139	172	156	573
Cuajimalpa de Morelos	45	39	48	56	188
Cuauhtemoc	144	184	188	221	737
Gustavo A. Madero	124	156	108	147	535
Iztacalco	70	45	66	38	219
Iztapalapa	129	100	145	165	539
La Magdalena Contreras	12	21	16	48	97
Miguel Hidalgo	85	168	70	121	444
Milpa Alta	2	6	8	128	144
Tlalpan	99	87	131	284	601
Tlahuac	36	44	53	105	238
Venustiano Carranza	41	62	78	58	239
Xochimilco	44	40	42	348	474
Total	1196	1436	1477	2366	6475

Source: PAOT, 2013. Compiled by author.

Conclusion

Building upon Heynen's (2003) conclusion— that the political economy of a city determines the format and features of most institutions in an urban context with different outcomes— this chapter presented an overview of the historical development of green public space in Mexico City, focusing on the creation of institutions that have variably managed green public spaces. The influence of the current Mexican political economy, operating under neoliberal principles, was analyzed as an agent in the institutionalization of early environmental policies. The main findings are:

1) There is a historical entrenchment of the rural-urban binary that has resulted in poor planning and execution of environmental policies and plans in Mexico City.

2) There is an institutional fragmentation driven by a neoliberal logic that effectively prevents successful urban environmental governance.
3) The creation of decentralized organizations like the PAOT is an outstanding institutional effort to contest practices that negatively affect Mexico City dwellers. Nevertheless, the institutional features of PAOT hinder its capabilities as a force capable to spur environmental justice further.

Environmental injustices in Mexico City are widespread among boroughs; yet, institutional efforts to document the issues have been constant and systematic. However, structural forces condition institutional capabilities to address socio-environmental issues thoroughly. Socio-environmental institutions in the *Distrito Federal* are a relatively recent creation (10 years old)) and they have had a good opportunity to reestablish the guidelines and policies to resolve the issues they were appointed to address. A major obstacle for these institutions is the deeply rooted financial dependence they have.

It is important to advance scholarly efforts to determine what are the alternatives to private investment in the creation and maintenance of green public spaces. Evidence shows that privatization of these urban amenities leads to gentrification and segregation of space biased against marginal populations. Furthermore, social participation should be financed and fostered by local organizations and supported by governments. PAOTs efforts are significant, particularly after the successful constitutional amendment they proposed to safeguard collective environmental needs.

CHAPTER 5

SUMMARY AND CONCLUSIONS

According to the 'State of The World's Cities" (2012/2013), a report by the United Nations, we are now entering in an urban age. Urban areas around the world are "becoming not just the dominant form of habitat for humankind, but also the engine-rooms of human development as a whole" (ibid: V). Rapid urbanization has been particularly pronounced in developing countries. The largest cities on Earth were, in 2004, Mexico City followed by Seoul, New York, Sao Paulo, Mumbai (Bombay), Delhi, Jakarta, Dhaka, Calcutta and Cairo. These megacities, all with populations exceeding 15 million, with the exception of New York City, present similar characteristics: high levels of poverty, environmental degradation, economic stagnation and soaring inequity. In addition, Cohen (2006:63) documented how "rapid urban growth throughout the developing world [has been] seriously outstripping the capacity of most cities to provide adequate services for their citizens". Latin America, most urbanized region in the world (80 per cent of the total population, compared with Europe's 73 per cent) [52], has seen the worst outcomes of the pauperization of cities in the developing world. Cities like Lima, Rio de Janeiro, Guatemala City, Buenos Aires, Quito, and Mexico City have become "dangerously dilapidated and massively overcrowded". These cities have also emerged as the largest recipients of slums in the American continent (Davis, 2006: 32). Given these conditions, scholars— both domestic and foreign— have started to focus their research on urban environments and the complex relations among its dwellers.

In North American cities, the social and political dimensions of urban nature (Heynen,

[52] State of The World's Cities, 2012/2013, p. 30.

2006a) and urban environments (Cronon, 1992) have been addressed and discussed with the aim of documenting the entrenchment of inequitable life conditions of urban dwellers (Holifield, 2001)..In Mexico, urban studies have traditionally concentrated on the study of physical environmental conditions (i.e. air, soil and water contamination levels) and its effects on the urban ecosystem (Carabias, 1988). However, only a few works have tracked instances of environmental injustices in the city (e.g. Durand Smith, Figueroa Díaz, Chávez, & Genet, 2011 and Lezama, 2000) and even fewer authors have investigated the structural forces that have fostered or perpetuated environmental issues in the city. Nevertheless, the work of authors like Delgado (2000) have unveiled the negative impact of neoliberal capitalism on Mexican urban ecosystems and its social fabric. Delgado identified Mexico's political economy as one of the main drivers of environmental degradation and social inequity in urban settlements. Moreover, authors like (Martin, 2005: 203) have considered the existence of "urban neoliberal topologies" as accountable for the "differentiated, segmented, and highly uneven conditions in Mexican cities".

The purpose of this study was to assess the socio-demographic dimension of green public spaces (GPSs), fundamental urban amenities for a livable city and key components of urban environments (Garvin & Brands, 2011). This research focused on the Mexican capital, Mexico City, and has drawn from different data sets in order to determine if and how distribution of GPSs manifest itself as an instances of environmental injustice. Socio-demographic and spatial data were combined using geographical information systems to explore the connection between marginal population's demographic characteristics and the spatial distribution of urban environmental amenities. Such an approach is central to environmental justice studies of distributional inequities.

Evidence that I have provided shows that green spaces in Mexico City are scant according to the international standard of 9 m^2/hab proposed by the World Health Organization and supposedly observed as claimed by the city's administration. In 2002 the government of the *Distrito Federal* and its Ministry of the Environment stated that, overall, 5.66 m^2 of GPSs were available per habitant in Mexico City[53]. However, the analysis presented in this research shows that the methodology used by the state to calculate GPSs figures did not follow the official categorization of "urban green areas" as defined in the Environmental Statement for the Federal District (NADF-006-RNAT-2004). I found that the fundamental issue while accounting for the distribution of GPSs was that some features included in the government dataset were not in fact publically accessible. For example, cemeteries, shopping centers, health care centers, some bodies of water, private edifications with green spaces, schools, markets, government palaces, electric substations and temples are not open to the general public and by including them, the government significantly inflates available green space per capita. In addition, Rivas Torres (2005) reported that more than 44% of the spaces classified as GPSs were only "grassed", agricultural areas or not at all vegetated public spaces. Rivas Torres attributed this severe inconsistency to the fact that the current administration followed a questionable criterion by considering spaces with less than 160 m^2 of vegetated areas (established as the minimum for an urban space to be considered a GPS according to the Article 88 of the Mexico City Environmental Law). Therefore, the numbers presented by Mexican authorities are inconsistent with the established legal categorization of urban spaces

53 An important fact to bear in mind in regards of this figure is that data provided by Mexican institutions have not been updated for the past 12 years

and thus unsuitable for academic analysis or public policy decision-making purposes[54]. Yet, given that there is only one spatial dataset available, I proceeded to analyze GPSs excluding all features that were not public and including a set of demographic values. I used the Population National Commission (in Spanish, Comisión Nacional de Población, CONAPO) ranks[55] to identify the neighborhoods (in Spanish, *colonias*) with medium-high, high, and very high poverty levels in Mexico City and their distributions of GPSs. My socio-spatial analysis was based on Thiessen polygons and dasymetric reapportioning of census data proposed and used by Boone et al. (2009), Sister, Wolch, & Wilson (2009) and Chiesura (2004). My results as presented above have clearly shown that GPSs are unevenly distributed against poor, young and uneducated citizens in marginal areas of the city.

Furthermore, I investigated the underlying historical and recent political, social, and economic factors that could be accountable or connected with the production of these uneven distribution patterns of GPSs in Mexico City. A main finding regarding the historical creation and management of urban green spaces in Mexican cities is the existence of the legacies of segregation—still present in the creation of parks, the most common form of green public space in Mexico. During the Spanish colonization of Tenochtitlan in 1521 and throughout the French occupation of Mexico (1861–1867) urban public spaces, traditionally in the form of plazas, were transformed into more appealing vegetated areas that would attract foreign investments and provide Mexico with the aesthetics of a modern city in a

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54 It is also important to establish that given the age of the original dataset and the lack of periodical updates it would be almost impossible to attempt to re-calculate the current number of overall GPS m^2/hab in the city.

55 CONAPO ranks refer to a function that accounts for four different socioeconomic variables: education levels, access to medical services, housing conditions (i.e. owning or leasing properties, number of inhabitants per residence) and access to residential services such as sewer and potable water. For a detail description of CONAPO's methodology see http://www.conapo.gob.mx/es/CONAPO/Capitulo_1_Marginacion_Urbana_2010

developed country. In the early stages of GPSs management, the main preoccupation of city leaders was to cater to the economic elite of the Mexican society, primarily composed of foreign bureaucrats and businessmen. Documented evidence demonstrates that the first public parks in Mexico City were located, without exception, in the wealthiest areas of the city.

Subsequently, during the *Porfiriato* (between 1876 and 1911), early industrialization processes in Mexico resulted in massive emigration from rural areas to urban centers and a number of parks were created in popular, poor boroughs of the city. However, according to Wakild (2007: 138) the rationale behind those park projects was to "tame uncivilized rural migrants". Wakild documented urban plans that described the "sanitary role of parks", a vision that Limantour and Quevedo[56] spurred and consolidated as a governance approach for parks and other forms of green space in Mexico. Therefore, the history of GPSs in Mexico City is fundamentally based on a foreign model that was imposed during the colonial era of Mexico. These historical biases resulted in a tendency to identify gardens, its flowers, grass and trees as amenities for the enjoyment of affluent population groups. And in contrast, the creation of parks in marginal areas was associated with the goal of subduing the so-called uncivil nature of poor migrants.

Green space politics in Mexico were also analyzed using three parks as case studies: *Chapultepec* Park, *Bicentenario* Park and *Cuitláhuac* Park. Building upon my historical assessment of the evolution of GPSs and its management in Mexico City, I situated these parks within a context characterized by public administration heavily influenced and often times funded by foreign capital. I conducted field work in the parks, observed their physical condition and

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[56] Arguably the most important Mexican historical actors in the creation of urban GPSs

interviewed people residing near each of them. Overall, and consistent with other environmental justice studies (e.g. Brownlow, 2006), parks and other forms of GPSs in marginal areas of the city were far from being urban amenities in the view of potential users. On the contrary, some of these "green" spaces appeared to be unused, unsafe and lifeless. For example, degradation and abandonment of the *Cuitláhuac* Park, located in *Iztapalapa* the poorest borough in Mexico City, was noticeable. The space was physically uninviting and almost entirely deserted. Several species of feral urban fauna, i.e feral dogs and rats, were present in the site along with homeless people. Uncollected garbage and dirt were also prevalent in the area,.

Moreover, no sign of public security (i.e. police officers or cars) was found inside or outside the park. In radical contrast, *Chapultepec* Park (located in *Miguel Hidalgo* one of the wealthiest boroughs in the city) appeared to be well maintained and vibrant. A feeling of "spatial exclusiveness" marked my visits to *Chapultepec*. The entrances to *Chapultepec* were heavily monitored by military police and it was common to see luxury cars parked in the entrance of the 2nd and 3rd section of the park. Museums and gourmet restaurants within the Chapultepec area were always full. Tourists and middle or upper class Mexican dwellers taking pictures with their smartphones and talking about the undeniable development of the capital were common; I interviewed some of them. I asked them about entrance rates and the overall experience of the park. All of them told me that, regardless of the "somewhat pricey" entrance fees, their visits to museums, amusement parks and other amenities were pleasurable.

Comparing *Cuitláhuac* and *Chapultepec* Parks yielded a series of findings useful to illustrate the polarization of GPSs provision in the city. Firstly, *Cuitláhuac* Park was created using

taxpayers money, the project requiring a considerable investment ($114 million Mexican pesos) to initiate works over the *Santa Cruz Meyehualco* landfill, one of the largest in Latin America. The idea was to "save" a brownfield site that use to receive a daily average of 6400 tons of solid waste (Castillo Berthier, 2003) and to transform it into a park for the most underserved populations of the city. The project did not include any restaurants or amusement parks as *Chapultepec*. Thus, maintenance (calculated annual cost of 1.7 million Mexican pesos) became a challenge for the administration of *Iztapalapa*. As described in chapter 3, maintenance costs for this park were considerable given the nature of the land that was used to construct upon. Tons of waste under the park generates explosive methane gas that has to be carefully monitored and controlled. This task requires high technical expertise and a constant flow of monetary resources. *Iztapalapa's* administration, famous for its negligence and corruption among its dwellers, couldn't manage the park and its conditions decayed rapidly after its inauguration. Conversely, *Chapultepec* Park became a profitable urban attraction funded with private capital and envisioned to serve a specific sector of the population: those capable of affording entrance fees and transportation costs to get to the park. According to reports by the Probosque Chapultepec Trust[57] (in Spanish, *Fideicomiso Probosque Chapultepec*), $269,979,525.37 mxp were invested in the "revitalization" of Chapultepec by Coca-Cola Company, Bimbo, HSBC International finance services, Televisa, Telmex, Wal-Mart, JP Morgan foundation, Nike, American Express, Scotiabank Inverlat, Merrill Lynch and Louis Vuitton to name a few. As a result, the political economies of both parks developed in sharply divergent directions: private wealth versus public poverty.

[57] Full report can be found in http://www.chapultepec.org.mx/web2013/wp-content/uploads/pdfs/informe_anual_probosque_2012.pdf

The Hidden Role of Parks in Mexico City

The creation of green spaces in American cities has been traditionally encouraged to fulfill social and environmental needs in urban settings (Chiesura, 2004). Across a range of disciplines (including environmental psychology, urban planning, public health, and geography) a broad array of health and well-being cultural services have been associated with the human experience of nature in cities (Wolf, 2012). Urban Green spaces can also provide environmental services, i.e. cleaner air and water, microclimate regulation, noise reduction, rainwater drainage and energy savings (Bolund & Hunhammar, 1999). Nevertheless, as seen in the contexts of Mexico City, parks emerge to fulfill political or economic requirements and do not necessarily contribute to collective social benefit.

A significant characteristic of GPSs in Mexico, particularly parks, is its role as "mechanisms to dismantle social upheaval". For instance, the *Bicentenario* Park constructed upon a former large refinery in the borough of Miguel Hidalgo and the limits of *Azcapotzalco* has been celebrated as one of the most significant urban socio-environmental projects by all Mexican administrations. In reality, the park worked as a social pacifier useful for the political right wing after publicly announcing that that one of the largest refineries[58] in Mexico would be closed definitely on March 18th, 1991. According to PEMEX (in Spanish, *Petroleos Mexicanos*) the renamed *18 de Marzo Refinery* produced Magna Gasoline, Premium Gasoline, Jet Fuel, Kerosene, Diesel, Gas and Liquefied Petroleum Gas (LPG), with a refining capacity of 7,500 barrels of crude oil per day. This refinery, albeit vital for the generation of fuels for the Mexican capital, was reported to be an "environmental risk" by the federal government and closed.

[58] In 1938, during the administration of Lazaro Cardenas (1934-1940) the 174 hectares that conformed the refinery owned by *Petroleos el Aguila* were expropriated.

I visited the National Archive and the UNAM library to look for environmental impact assessment documents made for the refinery. No documents were available in neither of the two largest academic and legal repositories in Mexico. Staff at UNAM library told me to visit PEMEX and ask for the documents. I visited both PEMEX and SEMARNAT archives; none of them had "environmental impact documents" prior to 1997. Without documented evidence of the supposed "environmental risk" that the refinery posed on urban dwellers, it is impossible to determine if the reasons why this space was transformed were in fact solely environmental, as the federal government argued. The environmental and social impacts of oil production and consumption, including refinement of crude, have been thoroughly documented and critiqued (O'Rourke & Connolly, 2003). Mexico City has suffered the brutal consequences of oil refinement and storage within populated areas; on November 19th , 1984, a massive series of explosions at a liquid petroleum gas (LPG) tank farm in *San Juanico* killed at least 500 citizens, injured more than 7000 and almost destroyed the entire town of *San Juan Ixhuatepec* (located in Tlalnepantla de Baz, Mexican State, part of the Mexico City Metropolitan)(Johnson, 1985). Despite of these evidence and events, the issue at hand remains to be the lack of official or academic documents to prove that there was an actual environmental-industrial assessment of the industrial site where the park is located. It is crucial to know if and how the decision to close the refinery was made after a legit governmental preoccupation for the safety of urban populations and not for any other objectives. Berman & Bui, 2001:498) explained that "despite high costs associated with the local regulations, productivity in the Los Angeles Air Basin refineries rose sharply between 1987 and 1992"[59]. In fact, corporations like Texaco and Shell invested millions in political

[59] Puyana (2006) provided an account of the corporations benefiting from the oil refinement markets that NAFTA created or reinforced. The south of Texas and California in the USA

lobbing aiming to open the border between Mexico and the USA in order to wrench crude oil from Mexico and other countries in Latin America. According to Zepeda, Wise & Gallagher (2009:10), the ratification of NAFTA resulted in "undermining [Mexico's] capacity to continue producing and refining oil, and providing funds in the future to finance public expenditures". Furthermore, Mexico also became "excessively dependent on the United States as an export market, with more than 85 percent of Mexican exports going to the United States, up from 70 percent in 1990"(ibid:10). In return for documented multimillion profits for foreign oil companies, the Mexican government promised a park.

In 1991, during a public speech, Carlos Salinas de Gortari (Mexican president 1988-1992) announced that the decision to close the refinery cost "six thousand direct jobs and a financial expenditure of more than $1.5 billion Mexican pesos". Newspaper[60] editorials decried the decision, as increases in fuel imports and fuel prices would be unavoidable with reduced supplies. Immediately after the announcement, people in the entire country and particularly in Mexico City started to question the decision and demanded a solution. Salinas de Gortari announced a couple of weeks later that the refinery site would be remediated and reused to build the largest park project since *Chapultepec*[61].

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concentrated most of the refinery services for Mexico.

[60] *La Jornada* reported that only 6 refineries plants were relocated to other states in Mexico to cover the domestic demand for fuels; the rest of the crude refinement processes were fulfilled contracting companies outside Mexico, particularly in the USA. Today, North American petrochemical corporations are still signing contracts to sell refined fuels to Mexico.

[61] The project's plan included a metropolitan park comprised of 55 hectares and three 'professional-sized" baseball fields.

The environmental risk justification presented by the federal government coupled with the promise of a park to enhance urban environments, health conditions and leisure possibilities for one of the poorest boroughs of the city worked to reduce opposition to the refinery closure as popular claims eased down. Nevertheless, according to (Fernández-Vega, 2010) the park project took so long to actually construct, it is only logical to think that the original announcement served as a quick ideological fix to mitigate the opposition originally engendered.

Fernandez-Vega (ibid) wrote:

It was only after nineteen and a half years, four presidents in Los Pinos, ten Secretaries of Energy (Felipe Calderón— also chairman of the board of Pemex— among them), eight general managers of Petroleos Mexicanos, the same number of Federal district rulers, seven secretaries of Environment and at least nine delegates in Azcapotzalco that the construction of the "ecological lung" took place […]

Today, the *Bicentenario* Park is a well maintained and vibrant urban amenity located in a poor area of Mexico City. *Bicentenario* is, perhaps after *Chapultepec*, one of the most important green spaces in the city. Nevertheless, the processes that resulted in the creation of this park could be described as driven by economic objectives rather than social or environmental needs. In other words, at the time the federal government announced the construction of this park, the environmental and social welfare was nothing but a facade hiding a larger business plan that would benefit immensely political and economic elites in Mexico and the USA. The *Bicentenario Park* was used at that time as political and ideological currency to payout social disruption. Parks and any other form of green public spaces must emerge to fulfill socio-

environmental needs, not to ease tension among populations resulting from structural inequity.

Based on evidence collected in my case studies, I am left to conclude that GPSs in Mexico are fundamentally oriented towards either capital accumulation or used as political and ideological means to legitimate objectives that favor economic and political elites. This type of urban environmental governance has been studied by Perkins (2011); he concluded that when financial private support increases in favor of "public" programs[62] the actual objective is to enlarge market capacity for profit through provision of various urban services. Concomitantly, an inexorable entrenchment of a "market-based logic and neoliberal hegemony" emerges where it previously has not existed (Ibid: 559). This is the result of at least 120 years of urban environmental segregation in Mexico. It started after the Spanish colonization in the Americas, an event that set the original precedent for urban planning of GPSs— only for affluent, often times European migrants. Such historical legacies persist; in today's Mexico City sharp socio-demographic differences are also palpable in its distribution of public spaces, particularly those that require constant maintenance such as parks.

Neoliberalism as urban governance driver

The root of the current uneven distribution of GPSs as an environmental injustice derives from the fact that parks, gardens, sports/leisure facilities and most vegetated areas in the city have been created with a limited concern to provide environmental and social services for the population. In fact— given that financial resources for GPS governance in Mexico City

62 A quintessential instance of what Peck & Tickell (2002) refer to as 'rollout' neoliberalism.

are, for the most part, not public tax-monies but private "investments"— the creation of green areas in the city aims to yield financial and political returns for political and economic elites. This practice of approaching GPSs as "investment opportunities" is eroding the city's capabilities to govern urban space for the collective good. In addition, as private corporations' investments in urban infrastructure increase, some of the amenities that have been historically responsibility of the city, such as GPSs, are now systematically regarded as urban luxuries for the privileged. The monstrous imposition of neoliberalism and its urban culture in Mexico City is unevenly transforming spatial interactions among its dwellers. The most significant spatial alteration in Mexico is the systematic loss of public spaces in favor of private spaces capable of fulfilling corporate accumulation goals. In that sense, if a family is not capable of affording transportation and entrance fees, they are very unlikely to find urban spaces for leisure available to them (Salazar Cruz, 1999). And more importantly they are dispossessed of their right to the city— regardless of the fact that they pay taxes for all consumer goods, properties, as well as an income tax of 17% (SAT, 2015). Therefore, the creation of state-provided, publicly funded urban green spaces is essential to contest the supremacy of market-based urbanization and to seize the control of urban ecologies away from neoliberal capitalist interests.

Right to the city *á la* Mexican

In 2003 Don Mitchell published his work "The Right to the City: Social Justice and the Fight for Public Space" based on a Lefebvrian approach to urban space. Fundamentally, Mitchell's thesis depicted the right to the city as much more than an individual liberty to dwell in urban spaces. He argued that this right depended on collective actions capable of participating in and transforming the urbanization process. And he also provided a number of examples to

illustrate the fact that modern urbanization in occidental cities has neglected this right. Mexico City's current administration has been using Mitchell's slogan and they even signed "The Charter of the City of Mexico for the Right to the City" (in Spanish, *La Carta de la Ciudad de México por el Derecho a la Ciudad, 2010*) as a "political commitment". Nevertheless, as shown in previous chapters of this research the current administration of the city has been practicing a corporatist urban management. Grand projects funded with private resources have been common, and as a result space in the city has been surrendered to financially powerful groups that determine urban practices that promote their own interests, often times leading social exclusion and privatization of urban services and public spaces (Harvey, 1989). Delgadillo Polanco (2012: 119) has already denounced the "emptiness of a progressive rhetoric in a neoliberal context". The author (ibid: 137) concluded that "this political discourse exists only in abstract terms" and it is "completely detached from the material urban political sphere". Recent events in Mexico City, such as the reform to the Urban Development Law in 2010, serve as solid evidence to prove that the city is, more than ever, committed to neoliberal practices and antidemocratic governance.

Despite the fact that the idea of the right to the city has gained power among Mexican politicians, the interface between institutions, urban dwellers and urban nature is, at best, disjointed. The right to the city in the Mexican context represents only the opportunity for people to increase their purchasing capability, thus becoming consumers suitable for the urban neoliberal project (Delgado, 2000). The lack of green spaces as means for a livable urban environment is a symptom of the ubiquitous "market logic" that ignores the demands of those outside of and marginalized by the market. Solidarity, security and a thriving bond with nature as left principles have been effectively eroded, and in some instances destroyed, because of urban neoliberalism (Fisher, 2009). In Mexico urban and environmental laws

have to be revised with an approach independent of a corporatist neoliberal agenda. The success of a democratic urban reconfiguration would be noticeable in the use of urban spaces and in the increase of non-commercial activities and spaces accessible to even the most marginalized.

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APPENDIX A

IRB EXEMPTION

Robert Bolin
SHESC: Human Evolution and Social Change, School of 480/965-6421
bob.bolin@asu.edu

Dear Robert Bolin:
On 2/27/2014 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Urban political ecology of green public space in Mexico City: Equity, parks and people
Investigator:	Robert Bolin
IRB ID:	STUDY00000652
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• ConcentForm_UPEMEXCITY_signed_rev, Category: Consent Form; • Social Behavioral_UPEMEXCITY_RafaelFernandez_revise d, Category: IRB Protocol; • Semi- structured_InterviewProtocol_UPMEXCITY_RF, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • CITI training, Category: Non-ASU human subjects training (if taken within last 3 years to grandfather in); • Bolin CITY training 2014, Category: Non-ASU human subjects training (if taken within last 3 years to grandfather in); • IRB revisions list, Category: Other (to reflect anything not captured above);

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (2) Tests, surveys, interviews, or observation on 2/27/2014.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator