Neoliberalism and parks: the urban political ecology of green public space in Mexico City[1]

Neoliberalismo y parques: La ecología política urbana de los espacios verdes públicos en la Ciudad de México

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Abstract

This paper presents Urban Political Ecology as a timely emerging suit of theoretical and methodological approaches useful to understand the socioecological production of uneven environments in Mexico City. Using four case studies of parks within the metropolitan area of Mexico City, this paper argues for a deeper and long-term commitment to understand the historical contexts in which social and environmental conflicts emerged. Following the work of Marxist urban political ecologists, the following work presents an analysis of green public space using GIS generated maps and archival public documents as means to disentangle and critic the effects of local and global political economy in the production of inequitable socioenvironmental relations in the Mexican *Distrito Federal*. The analysis shows that green public space in Mexico City is overall insufficient and unevenly distributed among boroughs; parks in particular have been disappearing as a result of increasingly common "development strategies" influenced by a urban neoliberal political economy that favors capital accumulation rather than social needs. The driving forces responsible of the current deficit and uneven distribution of green public space in Mexico City are historically linked to early "processes of modernization" in the first decade of the twentieth century and perpetuated trough time by deficient local decision making processes induced by institutional negligence and corruption.

Keywords: Urban political ecology, green public space, parks, Mexico City.

Resumen

Este artículo presenta a la Ecología Política Urbana como un conjunto de enfoques teóricos y metodológicos útiles para comprender la producción socioecológica de entornos urbanos desiguales en la Ciudad de México. Utilizando cuatro parques en el área metropolitana como casos de estudios, este artículo propone un compromiso académico más profundo y de largo plazo para entender el contexto histórico en el que surgieron los conflictos sociales y ambientales en la capital mexicana. Siguiendo el trabajo de ecologistas políticos urbanos marxistas, el siguiente trabajo presenta un

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análisis de los espacios verdes públicos utilizando mapas generados con SIG y documentos públicos para entender y criticar los efectos de la política económica local y mundial en la producción de las relaciones socioambientales desiguales en el Distrito Federal mexicano. El análisis muestra que los espacios verdes públicos en la Ciudad de México son en general insuficiente y están distribuidos desigualmente entre delegaciones. Los parques, en particular, han ido desapareciendo como consecuencia de las cada vez más comunes "estrategias de desarrollo" influenciadas por una política económica neoliberal que favorece la acumulación de capital antes que las necesidades sociales. Las fuerzas y actores responsables del déficit y la distribución desigual de los espacios verdes públicos en la Ciudad de México están históricamente vinculados a los "procesos de modernización" que se dieron a principios de la primera década del siglo XX y que han sido perpetuados en el tiempo a través de procesos políticos deficientes inducidos por la negligencia institucional en la toma de decisiones locales y la corrupción.

Introduction

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 m² 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 m²/hab, and also lower than the international minimum standard of 9 m²/hab suggested by the World Health Organization (Sorensen *et al.*, 1998). Moreover, Mexico City has a distinctly uneven distribution of urban green areas across different boroughs[3]; for example, the boroughs of *Miguel Hidalgo* (12.6 m²/hab) and *Gustavo A. Madero* (8.8 m²/hab) hold a disproportionately higher distribution of green space compared to *Iztapalapa* (1 m²/hab) and *Cujimalpa* (1.5 m²/hab)(Flores Xolocotz & González-Guillén, 2012). Although these numbers do not reflect important details as accessibility, patterns of use or physical conditions of green public spaces, they are indicative of flagrant 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 socioenvironmental 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 ut-

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[3] According to the Mexico City inventory of green pubic space created by the Directorate of Urban Reforestation, Parks and Bike Paths, 2002.

terly 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*[4] 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 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 post-modern– such as Mexico City, having access to safe and well-maintained green public spaces is in all respects necessary for people to maintain or improve their quality of life. Thus, the primary research question that this works seeks to answer is: if it is known that parks are essential urban amenities, why is green public space in Mexico City so scarce and so unevenly distributed? And as a complement to the initial research question, what is the best theoretical and methodological approach to answer this type of socioenvironmental query in the urban Mexican context?

Marxist Geographers like Harvey (2010) and Smith (1996, 2008) sustain 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, 2006; 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, 2003; Snyder, 2001; 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). Green public space, most commonly found in the form of parks, have also suffered the effects neoliberalism in the forms of blatant commodification and eventual privatization. The result of having parkland privatized– rendering population dispossessed of an essential urban amenity– is only a symptom of a structural political disorder that perpetuates social and environmental injustice. This work will examine a series of events influenced by neoliberal politics that have resulted in the creation and destruction of green public space, particularly parks, in Mexico City.

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[4] Population of 20.1 million (INEGI, 2010).

The article is divided in three sections. The first section presents a brief description of Urban Political Ecology (UPE) as a suit of approaches that has been increasingly used as a meta-theoretical framework to understand issues of urban socioenvironmental injustice. Given the fact that UPE focuses on the political economy of cities as the main driver for socioecological exchange and transformation, I initiate the section considering the socioeconomic production of space in the city within a Marxist approach. Subsequently, Marxists UPE is discussed in the light of research concerning green public space in cities. Although this section is presented in the form of a literature review, it is not the goal of this paper to present an exhaustive revision of research regarding green public space, but to offer examples of the most significant research dealing with green publics space using UPE theoretical tenets and methods. For the second section, the current state of green public space in Mexico City is presented juxtaposed to the socioeconomic conditions of Mexico's capital. Furthermore, Emily Wakild's (2007) work on parks in Mexico City is reviewed as a keystone research example useful to understand the importance of contextualizing green public space using history; her effort to untangle past and present ecological, economic, social and political knots to describe the emergence of parks in the city are a prime precedent to understand UPE and its potential use in the Mexican context. For the third section, four case studies of park provision and dispossession in Mexico City are succinctly examined using available archival data; documents provided by non-governmental organizations, independent news agencies and key stakeholders are examined against official documents in order to outline an initial characterization of the urban political ecology of green public space in Mexico City. Additionally the current socio-spatial condition of green public space in Mexico City is described and analyzed using Geographical Information Systems (GIS) maps and available quantitative data created by the Mexican federal government.

Using these data I will show that green public space availability in Mexico City is overall insufficient, unevenly distributed among boroughs and it has been disappearing to create other urban infrastructure, predominantly luxury housing projects. In addition, I will highlight that 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 inappropriate for the majority of its dwellers. Moreover, I will argue that understanding why and how these current conditions emerged historically is the first essential step before proposing any remediation strategies, and UPE serves as a bold emerging theoretical and methodological set of approaches to do so.

The Socioeconomic Production of Space in the City: A Marxist approach

Open spaces– streets, avenues, parking spaces, malls, parks, gardens, playgrounds, waterfronts, plazas, railways, and more– are essential for urban dwellers to create "communal life" and a city itself (Halprin, 1979). Nevertheless, according to Marxist geographers like (Harvey, 2008) and Smith (2008) space has been increasingly restricted as a result of socioeconomic transformations determined by the political economy of cities. For them "the whole capitalist system of perpetual accumulation [omnipresent in a global scale], along with its associated structures of exploitative class and state power, has to be overthrown and replaced"(Harvey, 2012). 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 *et al.*, 2006; Heynen, 2006; Swyngedouw & Heynen, 2003; Swyngedouw, Moulaert, & Rodriguez, 2002). 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 with coercive power used to exclude those without property. Consequently, disempowered populations are limited in their rights and alienated from urban spaces. In the particular case of Mexico City there has been an historical intention to "normalize" urban spaces in accordance to neoliberal socio-spatial transformations dictated by municipal policies heavily influenced by transitional capital (Walker, 2012). In the first decade of the twenty first century all spaces in the Mexican capital have been "refurbished, revitalized or developed" to comply with the bourgeois need for a more "modern and competitive city" a common euphemism for urban cleansing of everyone and everything that does not align with the main neoliberal project of capital accumulation (Walker, 2012). I will argue latter in this article that urban infrastructure serving social needs, such as parks, that are in fact utilizing urban space with potential for profit are particularly vulnerable to be lost in a neoliberal context. In other words the neoliberal rationale that permeates decision-making processes in Mexico City has a particularly negative effect in the creation and maintenance of different types of green public spaces as a result of the inability of such spaces to secure or increase financial profitability.

Another prime illustration of the effects of capitalism on urban landscapes is the work by Neil Smith (1996). Smith coined the concept of *revanchist city*[5] 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

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[5] From the French word *revanche*, meaning revenge. See Slater, 2004.

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. As a result, New York City in the 1990s became an arena for street violence against everyone outside "the civil society" and public campaigns against political correctness and multiculturalism (Slater, 2004). 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 occurrence in the context of global urban gentrification and the general urban geography of the late neoliberal capitalist city. Smith's thesis incited other scholars from Scotland (MacLeod, 2002), United Kingdom (Atkinson, 2003), Netherlands (Uitermark & Duyvendak, 2008), Ecuador (Swanson, 2007) and India (Whitehead & More, 2007) to examine similar occurrences of revanchism; these subsequent studies found similar forms of urban space exclusion in different cities having neoliberal capitalism as the ever-present system of production and main driver of revanchism. A chief goal of this article is to explain the current context of Mexico City's green public space to recognize the perhaps unintended but indisputable revanchist position that the administration of the city is taking towards the creation, distribution and accessibility to public parks in the light of recent privatization of park-land.

Urban Political Ecology

According to Walker (2005)the term political ecology is often traced to Wolf's work "*Ownership and political ecology*" (1972), which originated after studies of cultural ecology by Stewart (1955)that addressed human strategies for social survival through ecological and cultural adaptations (for a more detailed investigation of the roots of political ecology see Moore, Peet & Watts, 1996 and Paulson, Gezon & Watts, 2003). Political ecology feeds from two specific bodies of knowledge, political economy, which links relations of power with productive activities, and ecology, which incorporates analysis of bioenvironmental relationships among species and their ecosystem. Moreover, Zimmerer & Bassett (2003) defines political ecology as the study of the "fusing of bio- geophysical processes with broadly social ones" (Zimmerer & Bassett, 2003: 153).

Political ecology as an area of research and analysis has been present in studies of social and environmental issues for at least 35 years, covering a myriad of issues: industrialization of food products, health and the industry of pharmaceutics, disposition of global garbage, land-use and zoning, environmental governance, environ-

mental militarism, energy and security, water issues and air issues, just to provide some examples (see, Peet *et al.*, 2011). From the perspective of political ecology, the environment can be understood in a wide range of scales, from the tropical forest in the mountains of Venezuela to urban parks in Mexico City, always transformed by human politics, deciding what to use, construction the reason why it is used and determining who is benefited from that use. However, much of this political ecology thinking has been limited to a rural context until recently (Blaikie, 2012). In consequence, in the course of the first decade of the twenty first century the basic notion of underlying interconnectedness of human and natural processes has been appropriately extended to the foreground of "urban" through UPE (Roy, 2011).

The Marxist critic to the political economy of the 19th century urban setting disclosed the correlations between nature, societies, power and capital (Foster, 2000). This equation remains crucial to analyze cities all over the world. Marxist UPE has been used to explain uneven distribution and access to green public space and parks. Studies demonstrated that urban socioecological 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 (Brownlow, 2006; Heynen *et al.*, 2006). I concur with Mann (2009) that political ecology – and by extension UPE– should be Marxist "if by Marxist we mean Gramscian" (ibid, p. 335) due to the fact that as directed by Gramscian tradition, for this article I will focus on the economic moment (context) in which green public spaces emerge subordinated by hegemonic political and economic neoliberal practices.

As a theoretical framework, Urban Political Ecology (UPE) has been used to study uneven urban development (Smith, 2008) and its resulting unequal socioecological relations. UPE studies the complex relationship between environmental change, socio-economic urban characteristics and political processes. According to Byrne, Kendrick, & Sroaf (2007) there are "several principles and mid-range concepts upon which most urban political ecology studies are predicated"(p. 157). 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).

UPE offers theoretical avenues to explain the green public space 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 and nature. This theoretical approach is particularly ap-

propriate 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, 2006). 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 in-depth later in this article, recent events of public green space dispossession are taking place in Mexico City as a result of institutional negligence, apparent corruption entrenchment, and uneven relations of power that render the large majority of city dwellers extremely limited to defend their parks. 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 space for the sake of financial profit.

UPE theoretical lenses allows 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 to "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 public space in Mexico City is a task that must incorporate both social and ecological aspects responsible of producing urban environments in the city. Concomitantly, human-nature interactions in the context of Mexico City– that are the result of past and present material and geographical processes– can and should be interpreted using theoretical lenses capable to merge political, economical, ecological, demographic and social components of a city. Such is the case of UPE.

UPE research with a Marxist approach is abundant (see Keil, 2003, 2005 for a detailed accunt of a variety of studies related to UPE). For example, Heynen (2006) research on the social production of urban forest in Milwaukee is an urban political ecology research paragon. Heynen *et al*. analyzed urban forest-inequities based on a Marxist urban 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 socio-natural landscapes" (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 iden-

tified high levels of socioeconomic inequality, predominantly among non-white populations– as a critical component that contributed to generate environmental injustices. This 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 *et al.*, 2006). Regardless of the fact that Heynen's research (Heynen, 2003, 2006) is not on parks *per se,* he is insistent on analyzing important past and present socioecological processes embedded in the political economy of cities that can affect the creation, administration and maintenance of urban nature.

Urban Political Ecology and Parks

Kitchen (2012), using a Marxist urban political ecology framework, offers a 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 engaged with the 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]" (Kitchen, 2012: 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 (i.e. environmental and socioeconomic services). The main objective of his work was to answer the question "Are trees always 'good'? This question challenges 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" (Kitchen, 2012: 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– hybrid urban rural communities that use to be dedicated to coal mining, poor, unemployed and socially deprived– 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 on the area. Kitchen's research

showed that communities dismissed the whole forest as 'not natural' and 'a wood factory' (Kitchen, 2012: 7) that generated delinquent, criminal behavior and a general feeling of unfairness against the people of The Valleys.

It is also important 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; M. Davis, 1999; Madge, 1997); hence, it is essential to analyze not only the material dimension of green public space but also the discourse and language used to produce it. 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" ((Brownlow, 2006: 242). Using "loosely structured" interviews and focus groups as methods, Brownlow gathered narratives regarding social and environmental changes in Philadelphia's Coobs 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" ((Brownlow, 2006: 227).

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" (Byrne *et al.*, 2007: 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"(Byrne *et al.*, 2007: 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 re-

search 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" (Byrne *et al.*, 2007: 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). For example, Byrne *et al.* argued that instead of addressing "the structural causes of concentrated poverty, proponents of park-based urban revitalization in Los Angeles […] have operationalized a discourse that privileged physical and moral uplift and economic improvement to combat transgressive behavior by the urban poor and people of color" ignoring the fundamental drivers of inequality that exacerbate environmental injustices in the form of green space depravation (p. 174). 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.

The unique characteristics that compose the political ecology of a city generate distinctive effects in the production of urban environments and landscapes. As proposed by Marxist political ecologist, 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 urban groups, mostly minorities (Pulido, 1996, 2000). Many instances of social and environmental injustices in the form of uneven distribution or access to green public space– commonly found in the form of parks– 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 on parks in the USA. The main objective of their work was to examine the distribution of parks in Baltimore, Maryland as a socio-environmental issue. 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" (Boone *et al.*, 2009: 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" (Boone *et al.*, 2009: 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 is the social component of their research which included a historical-process analysis that investigated the drivers that generated park distribution and access patterns. They 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" (Boone *et al.*, 2009: 783). 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 intertwined with race, gender and socioeconomic status. Another relevant example is the work of Sister *et al.*, (2009). Authors 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"(Sister *et al.*, 2009: 229). The main objective in her work was to assess the spatial distribution of parks as a "pragmatic way to redress existing disparities in park access" (Sister *et al.*, 2009: 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" (Sister *et al.*, 2009: 243). The authors goal was to develop "decision-support tools" to improve park politics capable to generate better funding allocation based on democratic and equitable principles. This approach, assessing spatial distribution, is very common within literature regarding green public space.

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 socioeconomically diverse cities such as Los Angeles" (Heynen, 2003, cited in Pincetl & Gearin, 2005: 366). To do so, they started presenting evidence for "tangible" environmental benefits resulting from green public spaces. CITYgreen[6] 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: calculations indicated average benefits at $275 per cubic foot of potential avoided storm water infrastructure costs, a reduction of

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[6] A geographic information system developed by the nonprofit organization "American Forests", that has been used to quantify the economic costs of ecosystem function losses resulting from increased urbanization at the urban fringe. Pincetl and Gearing, 2005, p. 369.

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 *et al.*, 2006)– they examined current patterns of environmental services unequal distribution as a result of years of green public space social, economic and cultural evolution. Setting the historical, geographical, and institutional context in which green space emerges to serve urban populations 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). Notwithstanding the undeniable relevance of Pincetl & Gearin's work, their arguments relied heavily on results that emerged using a positivist methodology that appeared to be functionalist in essence and not capable to examine in depth the driving forces generating the environmental justice issue in question.

Mexico City's Green Public Space

Current environmental issues in Mexico City have been studied by multiple disciplines, particularly natural sciences, focusing mainly on measuring air and water quality (Lezama, 2000; Ward, 1990). However, the 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 socioecological changes in the Mexican *Distrito Federal* over time. In this section I will present the basic socio-demographic "deeply differentiated" characteristics of Mexico City's population (Aguilar *et al.*, 2003) in a succinct and simple way; additionally, data on green space provided by Mexico City's government official websites complemented with recent academic publications will be reviewed. I will also discuss briefly the work of Emily Wakild (2007) on urban parks in Mexico City during the *Porfiriato*[7] as a historical foundation to analyze the UPE of green public space in the city. Furthermore, I will present succinctly four case studies: 1) *Chapultepec* Park, 2) *Reforma*

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[7] 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.

Social Park, 3) *Bicentenario* Park and *Cuitlahuac* Park to be used as illustrations of the current political ecology of green space in Mexico City and to examine the environmental injustice present in the Distrito Federal in the form of uneven distribution of green space.

Mexico City in a Glance

Mexico City has a total area of 1,485 km² (573 sq. mi) and a population of 8.851 million (INEGI, 2010). In addition, The Metropolitan Area of Mexico City (MCMA), comprising 16 boroughs of the Federal District, 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 will concentrate only in the Distrito Federal (DF) and its 16 delegations for this paper; I will 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). 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-industrialized and "modern" MCMA: urban-rural marginal periphery, bureaucrats in housing projects[8], peripheral proletariat, mixed zones, educated middle class and urban elite. According to the authors, the socioeconomic, 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-urban migrants living with the minimum wage, with a high ratio children per parent living in densely populated zones– was present in many parts of the city and typically concentrated in the center of the Distrito Federal living always in precarious conditions (Saraví, 2008). The precariousness of the proletariat in Mexico City can be atrocious compared to other groups with a higher socioeconomic status; most marginal groups in Mexico City live without proper access

[8] 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.

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, maldistribution and inequitable access to urban services is common and oftentimes biased against marginalized populations (Holifield, 2001; Schroeder *et al.*, 2008). Environmental justice (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 the production of green public spaces vis-à-vis socio-demographic, economic and political characteristics as an environmental justice is very scarce in Mexico City.

Mexico City and its Green Public Space

According to the Mexico City inventory of Green Pubic Space created by the Directorate of Urban Reforestation, Parks and Bike Paths, 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 in Mexico City (Table 1). These figures include all green areas, private and public[9], protected and unused; everything that is green, including bushes and grass, is considered green space. It is clear that there exist a sever issue of uneven and– based on EJ theory– 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 (Table 1) – a document created in collaboration between Mexico City's Ministry of Environment and INEGI– are not discussed in detail in any official report and there is no information about the responsible author(s) of the study nor well-defined explanations regarding the process to obtain these numbers.

[9] 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.
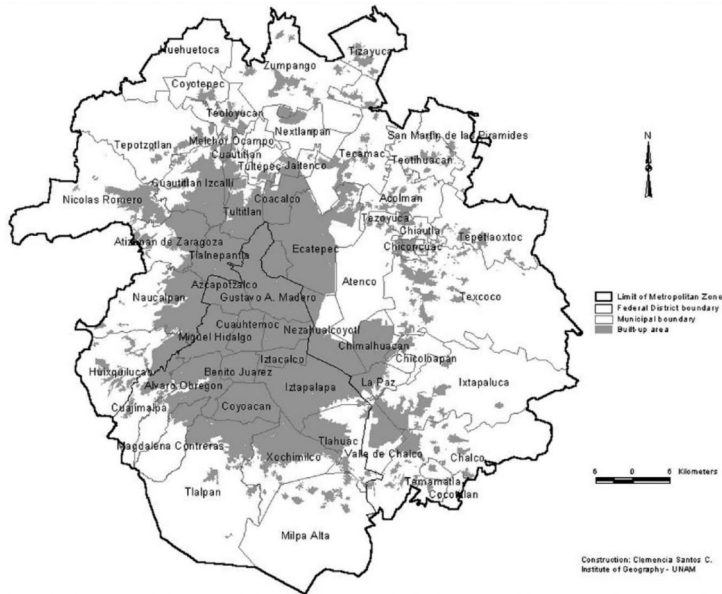
Map 1. Political limits of Mexico City, the Federal District, the Metropolitan Zone and the built-up area(Aguilar *et al*., 2003).

Table 1. 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: the borough of Milpa Alta is not considered as due to the fact that it is located entirely within "Conservation Land" (sic.)								

Nevertheless, this is the only official and unofficial source of information regarding green space distribution in Mexico 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, a law that governs all environmental affairs within Mexico 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 Gobierno del Distrito Federal de México (2002) available; to my knowledge and after a thorough research online, for the past eleven years no further studies to update this information have been made. There is only one map of green areas per habitant– discussed later in this section– created by the Environment and Land Management Agency for the Federal District (2009) that can be used as a revised reference. This could indicate that the institutions responsible for the management of green public areas have neglected the 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 public space available today? 2) Where exactly are green spaces located? 3) Is green public space distribution showing signs of inequity and how so?

A graphic depiction of this table in the form of a map (Map 2) was created by Rivas Torres (Rivas Torres, 2005). The author incorporated 4 different conventions for the map: 1) green for threes, 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)– less than the 2002 figure of 128.28 km^2 offered by INEGI in Table 1- divided 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 of Mexico City and that the center and northwest are significantly less green.

In addition to the sole distribution of green space among boroughs in the city, it is also important to highlight the specific socio-demographic attributes of those areas without green areas. Mier y Terán *et al.* (2012) conducted research in Mexico City regarding urban poverty, residential segregation and public space and identified the neighborhoods (*colonias*) with medium-high (yellow), high (red) and very high (dark red) poverty levels in Mexico City (Map 3). If compared to the last two maps showing the distribution of green areas it is clear that the southeast of the city is not only the area with less green space in Mexico City 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 inexistent basic urban in-

frastructure, substandard housing, high levels of unemployment or underemployment, social stigmatization (Mier y Terán *et al.*, 2012)– and as showed, very low levels of green public space, an important urban amenity.
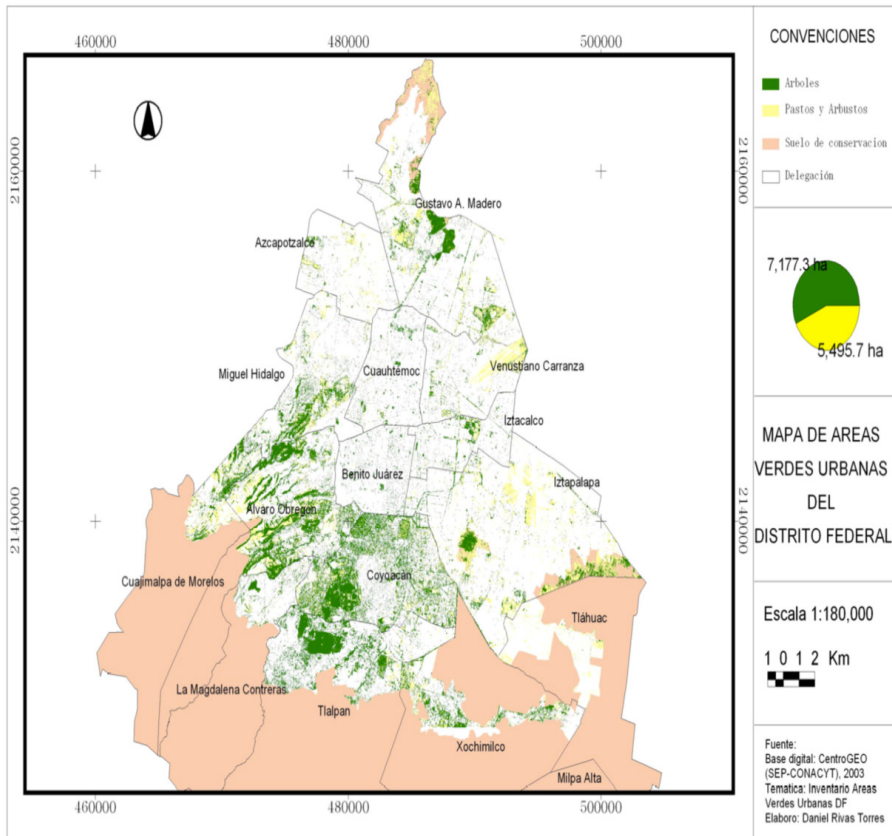
Map 2. Urban Green Areas of the Federal District, Mexico City (Rivas Torres, 2005).
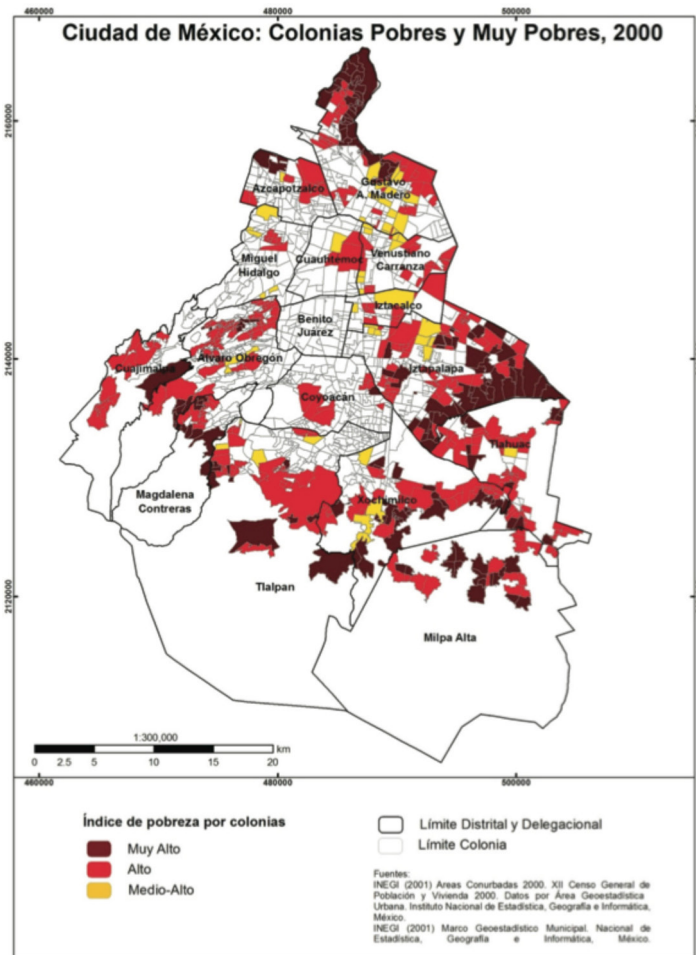
Map 3. Mexico City: Poor and Very Poor neighborhoods, 2000 (Mier y Terán *et al.*, 2012).

Environmental History of Green Space in Mexico City: Parks in the Capital

One of the most relevant studies on parks in Mexico City is "*Naturalizing Moder-nity: Urban Parks, Public Gardens and Drainage Projects in Porfirian Mexico City*" by Emily Wakild (2007).

According to Wakild, as a result of socioeconomic factors interwoven with historical decision-making processes, urban parks in Mexico City emerged in a unique way. 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 (Wakild, 2007).

Wakild's work is based on an analysis of the historical "processes of modernization" during the last part of the 19ᵗʰ century, under the administration of Porfirio Diaz, a post-colonial Mexican president. Diaz was president of Mexico from 1876 to 1911, ruling for almost 35 years and becoming one of the first dictators in Latin America. Diaz legacy in Mexico City's public space and parks is still present as his administration generated segregation due to biased urbanization strategies against rural immigrants. Diaz is considered responsible for the "transition to a Modern Mexico" that forged the current urban personality of Mexico City (Garner, 2001; Johns, 1997). In this context, Wakild 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 científicos"*(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, on one hand the project of urban sanitation for millions that migrated to Mexico city after the Mexican Revolution, and on the other the colossal task of making Mexico City a modern, more European city, capable of portraying Mexico as a civic and progressive country, avoiding by all means the reality of a broke and mostly indigenous state (Johns, 1997).

It is known that Porfirio Diaz had an obsession with Europe (Garner, 2001) that resulted in a number of changes in Mexico including the development and planning of public space in Mexico City heavily influenced by European conventions and practices. Mexico never had any parks as public spaces in its pre-modern era as a result of the Spanish colonization. Most Spanish customs were adopted in all large Mexican Cities, including the architectural and urban tradition of *plazas*, the Spanish public space par excellence. Against this historical background, Diaz literally imported from Europe the idea of parks; there were no public spaces of the like in any Mexican city. Although, that is not to say that nature was not existent in Mexican cities, on the contrary, large and lush green areas were in place during pre-hispanic times. Wakild presents 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 scientist" legacy on Mexico City's green public space is the *Chapultepec* Park, currently the largest park of Latin America. *Los Científicos* and Diaz were very concerned with the issue of "rural backwardness"; both 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 Diaz administration to "clean" and "beatify" 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 ruling classes and was successful 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, as mentioned before, that the political 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 the civic manners, the garden was not constructed or funded 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 and the rests of the world 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 an 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.

Urban Political Ecology of Green Space in Mexico City: Four case studies.

The emergence and development of urban parks as public spaces in Mexico City serves as an environmental historical foundation to develop a complete analysis of the socioecological production of green space in Mexico City today. In the following pages I will succinctly explore four different case studies in the current post industrial neoliberal context of Mexico City– all of them related to parks, the most common form of green public space in the city. I will elaborate on the background and current state of each park with the objective to create a preliminary outline useful to characterize the political ecology of green public space in Mexico City.

Chapultepec Park

The first case study is the partial privatization of Chapultepec Park (Map 2)– locat-

ed 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"[10], *Trepi* (real estate and constructing company) became the owner of 8950 m² of Chapultepec Park (*La Jornada*, 2012a). *Trepi* immediately fenced the perimeter of the area with constructing wire-mesh impeding park users to 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"[11] to a foreign firm that intends to offer luxury residences with Chapultepec Park as their backyard.

Losing part of Chapultepec ignited a series of protest against *Trepi*– now owner of former public parkland– and against the administration of Mexico City that was incapable to preserve an essential 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 Gershon (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 events have only one objective– to accumulate money– not for city, but for corrupt bureaucrats and rapacious foreign companies"(*Protestan por privatización de Bosque de Chapultepec*, 2012). Chapultepec Park as a case study is particularly relevant for Mexico City due to the fact that it is the first historical urban park in Mexico City. Moreover, until now, there are no studies regarding the evolution of this green space in Mexico during and after the post-industrialized era when:

1) A second historic massive migration from rural areas to Mexican capitals took place as a result of an industrialization surge in Mexico (Pezzoli, 2000),
2) Neoliberal capitalism started to permeate as the main transformative force of cities in Mexico (Delgado, 1995, 1997, 2000, 2012) and
3) The environmental Mexican discourse was transformed by the Mexican political economy from social and environmentally conscious notions to a technocratic and sustainable development approach (Durand Smith *et al.*, 2011; Lezama, 2000).

Understanding the environmental, historical, economic, social and political forces that influenced the socioeconomic production of Chapultepec will be useful explore and delineate the basic post-industrial characteristics of the political

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[10] Supreme Court of the Nation, case 1321/2007.
[11] Expropriation Decree, Federal Mexican Government, 1992.

ecology of green space in Mexico City. A detailed historical background of the post-modern era of the largest park in Mexico City will be useful not only as a start point to interpret and analyze other green spaces in the city but also to theorize on the reasons why public parkland is privatized.

Reforma Social Park

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 residential area and a public park. A long and irregular legal process (*La Jornada*, 2012b) 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 Social Reform neighborhood's park in private property. A sizable amount of green public space (34, 000 m²) that served 400 mid-income families– was lost to construct a gated apartment complex (Defensa Ciudadana del Parque, personal communication, 2012). As a result, neighbors of 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 demonstrations against the "unfair dispossession of the people's park"(personal communication with Adriana Bermeo, leader of the Defensa ciudadana del Parque organization, 2012). The last administration of Mexico City (2006-2012) responded sending public forces and anti-protest groups to contain walkouts and other forms of manifestation. Regardless of several mobilizations organized and supported by NGOs and even Mexican Mass Media to reclaim the green space – Television Azteca, part of the Mexican mass media duopolio, reported several times about the incident inciting Mexico City's government to revolve in favor of the people– the *Reforma Social* Park remains today to be private property.

This case study is useful to "better understand the social production of urban environments through the interdependent context of urban-political economy"(Heynen *et al.*, 2006)– in the case of Mexico City, neoliberal capitalism– that commodifies space in cities as a strategy for capital accumulation that often times disregards urban dweller's basic social and environmental needs. This case study– if investigated further– can allow examining the institutional apparatus that consents green space privatization, in other words, what are the main actors, processes and (anti)social mechanisms that create the necessary conditions for privatization to emerge. The Reforma Social park case will also allow urban Mexican scholars to explore the different forms in which people produce green space discursively in Mexico City– what is a park for them, what do they use it for, and why it is important to have urban amenities like this? Considering that

the park was lost and the state could not do anything about it, it is clear that the administration of *Miguel Hidalgo* has a very different conception of green spaces' value as an essential socioecological amenity compared to the way people from the *Reforma Social* neighborhood see their park. Moreover, this case study could also be examined within the theoretical framework of the "*Revanchist City*" proposed by Smith (1996) in which people that benefited from liberal and social policies in the past are now persecuted and stigmatized as nuisances threatening the cleanness, civility and development of a city. Within this framework people's struggle to recover their park was presented by conservative media as violent and uncouth– just a group of unemployed people protesting and creating vehicular chaos for no legitimate reasons– debilitating or rendering mute the efforts of people to establish a front against green space dispossession. In this perspective, people contesting park privatization became responsible of a bad image for Mexico City and blamed for the violence and unease that is lived daily in Mexico City.

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* oil Mexican company– was closed with the purpose 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 detail documents or academic reports explaining the specific reasons why exactly this refinery ceased to exist at that time; if the 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 indented to mitigate. This is not to say that the refinery did not created environmental impacts after over 60 years of operations; recent reports presented by the UNAM stated that the "soil and subsoil contamination in the site was notably beyond expectations" (*Libro Blanco*, 2012: 28). Conversely, 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 refinement 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 in Mexican territory. This decision obeyed 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, fifteen years later in May 2007, president Felipe Calderon (2006-2012) announced the ambitious project of *Parque Bicentenario* to be constructed upon the lands that occupied 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 Mexico City's inhabitants. The project had an estimated total cost of $ 1,847,718,668.00 (mx pesos)[12], an unprecedented investment on green urban space infrastructure in the history of Mexico City. The money served for a variety of different tasks ranging from dismantling the original infrastructure used by the refinery and sanitizing 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 limits 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 on of the elite boroughs of Mexico City (Monkkonen, 2012). The reasons why 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) emergence in Los Angeles, California, USA discussed earlier in this paper (Byrne *et al.*, 2007). 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 but, arguably, both parks generated a false feeling of 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 single 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 capital agents to keep investing and generating financial revenue at the expense of citizens. It is clear that neither of the parks in Los Angeles or Mexico City discussed earlier in this paper is capable to provide real long-term solutions to urban pollution or social inequality in these cities. Although it has been proved that the environmental and social services provided by parks are essential for a "livable city", the structural sources of contamination, unequal distribution of green spaces and social segregation in both cities remain intact and perhaps perniciously obscured by politically staggering yet hollow urban projects like these parks.

The *Bicentenario* Park case is one of the most illustrative examples of postindustrial parks in the Mexican capital– and if characterize in detail– will offer essen-

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

tial information to understand the urban political ecology of post-industrial green space in Mexico City. As of now, this academic task has not ben undertaken by any Mexican or international scholars.

The Iztapalapa borough: Cuitlahuac Park.

The last case study is the *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 super dense borough with the highest amount of children and– as seen earlier in map 3– the area with least available green space per habitant. *Iztapalapa's* environmental, social, economic, and political characteristics are the antipode of *Miguel Hidalgo*, hence, this borough serves perfectly as a case study to contrast opposite green public space conditions in Mexico City.

   Cuitlahuac Park is a very peculiar case, 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 landfilled received daily an average of 6400 tons of waste and 800 families of scavengers in the site clandestinely undertook recycling operations. 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 threes, predominantly Eucalyptus and *Causarinas* cover 75% of the total vegetated surface of the project (reported to be 145 hectares) and serves a approximately 5000 visitors per week, mostly infants and elders.

   Today, several journalistic articles from mayor news papers 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. 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 complicated to understand the reasons why this park has become an incredible waste of resources.

Cuitlahuac Park is a powerful case study because of the atypical conditions in which it emerged. It is opportune to examine the specific political, economic, social, ecological and cultural processes that resulted in selecting former landfill to create a public park aiming to illustrate Mexico City's green public space political ecology. Moreover, the fact that this park was created to serve the green public space unattended requirements of the poorest area of the city– where the largest urban landfill was allocated (a clear example of environmental injustice)– is a discursive and material contradiction that needs to be explored.

Conclusion

The present green public space deficit in Mexico City and its manifest uneven distribution among boroughs is a classic example of a socioenvironmental issue. It is also clear that uneven distribution of green public space in Mexico City constitutes an urban environmental injustice. However, three critical components of such environmental injustice are yet to be explored in detail: 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 space in Mexico City. As suggested by UPE urban issues are the result of a series of political, economic, social and ecological entanglements capable to (re)produce urban environments. UPE offers a rich theoretical and methodological body of knowledge that points to the driving forces responsible of fostering and perpetuating social and environmental differentiation within cities. In the particular case of Mexico City there is a shortage of critical studies oriented to unveil the fundamental reasons why issues such as inequitable distribution of urban amenities– in this case parks– emerged through time. Durand *et al.* (2011) compilation and review of political ecology research in Mexico demonstrates that it is particularly important to explore the original sources of socioenvironmental problems in Mexico and that much more attention should be paid to urban issues. The Mexican tradition of focusing in rural environmental issues is rational given the fact that the countryside of the country faces the worst conditions; nevertheless, this binary of town and country should be revised in order to generate a better understanding of the forces that are capable to erode the democratic and fair production of environments in both contexts. I also agree with the authors in that " [socio]environmental issues

are not objective" (Durand *et al.*, 2011: 300) but the result of a complex imbroglios of socioecological relations. Nevertheless, it is evident that decision-making processes in the particular case of Mexico City have been heavily influenced by a neoliberal political economy that favors capital accumulation over social benefits, a condition that had generated uneven development within the city in favor of a very small sector of the population. It is my hope that this work spurs scholars studying urban, environmental and social issues in Mexico to tackle problems with a critical approach. Understanding the historical contexts– and its legacy in the current production of urban environments on Mexico City– is essential to complement a trend of positivist, strictly functionalist vision that often results in inappropriate "solutions".

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