

Article

# Spatial Equity in Urban Public Space (UPS) Based on Analysis of Municipal Public Policy Omissions: A Case Study of Atizapán de Zaragoza, State of México

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**Abstract:** International agendas, such as the 2030 Sustainable Development Goals, have been established as global guidelines for equitable planning of urban centers. However, there is a lack of indicators and tools for public policy planning at the local level. Spatial equity in planning has been related to the spatial match between public facility level and residents' distribution. The objective of this research was to assess the spatial inequity in urban public space (UPS) of Atizapán de Zaragoza, State of Mexico, and analyzed the cause of this phenomenon with a methodological framework based on the general indicator omissions in public policy. The indicator, omission of municipal public policies associated to UPS, allowed us to explain the existence of the spatial inequity in: (1) the conceptualization and interpretation that decision makers have about urban environmental development in the territory; (2) the lack of a public discussion about the sustainable vocation of the municipality; and (3) the dominant values of the actors involved in the production, planning, and installation of UPS. The significance of this phenomenon affects the recognition that UPS is a primary element for guaranteeing the rights to a healthy environment in equitable and sustainable cities and a resource for strengthening social cohesion, governance, and appropriation of public assets.

**Keywords:** urban public space; spatial equity; un-politics; omission; public policy; Atizapán de Zaragoza

## 1. Introduction

Urban public spaces and spatial equity are articulating elements in the construction of public problems. The study of urban public spaces (UPS) from a socio-environmental approach allows a greater understanding of urban contexts and comprehensive and equitable public policies. Lefebvre [1] discussed the public space of cities as a social creation, signaling that its production and reproduction has an important influence on social and environmental systems in cities. Considering the central urban and social functions that UPS perform, we can define them as places that prioritize the infrastructure and urban equipment over social characteristics and have the purpose of providing open and accessible environment for social interaction. According to the Mexican Secretariat of Social Development (acronym in Spanish: SEDESOL) [2], UPS represent ideal places for the development of sports, recreation, and artistic-cultural activities, as well as for the use and enjoyment of the community. However, from a socio-environmental aspect, crucial for this study, public spaces are primarily considered social spaces where social reproduction develops based on power relationships [1,3]. Moreover, previous studies showed that people living close to parks enjoy health benefits including mental health, stronger social ties, and sense of security [4–7]. Allocating the use of land to public

spaces in cities promotes coexistence among those who live in the same neighborhood, being the first step for greater participation of communities, local development, and sustainability [6]. These benefits often result in an increase of property value [8,9]. Thus, the complexity that urban public spaces face in public policies is characterized by various aspects, namely the lack and inequality of their offer, contribution to the quality of life [10–12], privatization [13,14], abandonment or lack of use [2], inequitable geographical distribution in cities [15], internal insecurity [16], and the lack of planning in urban policies by governments [17–21]. Due to these complex and systematic aspects, in recent years the UPS has acquired a significant place in the debates about the city, the agenda of urban, environmental, and social policies, as well as in the theoretical works from various disciplines.

Lately, it has been confirmed that the majority of Latin American cities have scarce UPS, with poor quality and inequitable distribution [2,6]. The UN-Habitat goal for 2030 is to increase the percent of UPS in areas with 150 inh/ha to 45%, where ideally 15% of that UPS would be shared between open spaces, green areas, and public equipment [22,23]. The WHO recommends from 9–12 m<sup>2</sup>/inh of green public [24,25] located equitably and in maximum 15 min' walk from housing. Thus, the social role of UPS should be analyzed from the aspect of equity in planning. However, very few studies discussed the equity in distribution of UPS, even though the UPS embodies the democracy of cities and the expression of rights of its inhabitants [26] and therefore, the guarantee of these rights.

#### *Research Question and Aim*

Equality guarantees that everyone is provided with equal opportunities to fulfill their necessities. On the other hand, equity deals with understanding and providing people with what they require to fulfill their necessities [27–29]. The crucial difference lies in understanding the needs of vulnerable groups to receive disproportionately more benefits [30], thus equity differs from equality in taking in account the socio-economic profile of different groups of citizens [31]. Kabanoff [32] links the different aspects of equity and equality with conflict in two basic pressures: (a) one stems from equity violations and results in overt conflict involving attempts to restore equity and (b) the other stems from equality violations and results in non-directed conflict that is symptomatic of decreased social cohesiveness. According to Frederickson [33], social equity in public administration is dealing with fairness of organization, management and delivery of public services and in the United States system is considered a third pillar after efficiency and economy [34]. The concept of equity in the socio-spatial studies has had various handlings from the different disciplinary approaches, with some problematizing the complex situation faced by equity that leads to other discussions of variables or indicators, such as: distribution, availability, access, quality of spaces and particularly power, Governance, and decision-making [15,26,35].

Our approach is to analyze the UPS from the aspect of spatial equity [28] or providing just distribution of public facilities as a result of public policies that regulate the spatial planning. In the context of spatial equity, Yuan et al. [36] defined the equity in terms of service distribution from two aspects: (1) horizontal equity, in which everyone receives the same public benefit following the concept of social equality; (2) vertical equity, related to social equity and based on the different ability and demand of various social groups. Therefore, spatial equity in planning is related to the spatial match between public facility level of service and the distribution of residents and is intimately related to the accessibility of public goods, which should exceed the technical, cognitive, physical and socioeconomic capabilities that the various population groups might have. On the other hand, it is relevant to carry out research on urban public policies at local level to understand and explain the decision-making process, public actions or omissions in public problems. The research on public policies regarding the UPS makes it possible to identify the interaction that exists between the actors involved in the genesis of public problems, in apparent and manifested conflicts, in the operational and social construction of problems as well as in the interests and spheres of influence. International agendas, such as the Sustainable Development Goals (SDGs), the New Urban Agenda and the Intergovernmental Panel on Climate Change have been established as guidelines for planning of urban centers [37]. However, there is a lack

of indicators and systems of information associated to UPS at the local level. For example, Mexico City, until recently, lacked information regarding green public space distribution and socio-demographic data [38]. In addition, very few methods and instruments of planning exist that can be used by local governments in equitable distribution planning of UPS. Therefore, there is an urgent need to develop instruments for public policies that can help local governments in improving the spatial equity of planning UPS.

The problem examined in this study is the equitable distribution of green public space in the local context and recognition of local structures and actions in the process of spatial (in) equity design to unpack their influences. The main research question that we focused on was: is it possible to explain the unequal distribution of UPS with the omission of municipal public policy in Atizapán de Zaragoza, State of Mexico? Public policy scholars [39–41] have not only dealt with the decision as an action. Numerous studies and analyses have long observed that the public decision can also be expressed in non-action, that is, omission. The classic work of Crenson [42] highlights how the decision-making process is guided by the non-decision-making process, on which we base the approach of this case study. The hypothesis was that if we can clarify the omissions in the process of policymaking, the role of the active agents and their interests in the UPS planning, then we could provide guidelines for future planning of UPS based on social equity. Thus, the framework of this research establishes that there is an omission (un-politics, [42]) in municipal public policies aimed at public spaces that prevents having an equitable perspective in local organizational processes based on governance [43]. The objective is to identify the deficit and inequitable distribution of urban public spaces through a diagnosis and analysis of the municipal policies in Atizapán de Zaragoza, State of Mexico, which can serve as a guideline for proposing future public policy based on equity. One of the central specific objectives is to analyze the elements of policy omissions associated with the deficit and inequitable distribution of the UPS in the municipality, in which three indicators, detailed in the Methodology section, were established to explore the reasons, the context and the actors that participate in the current planning of UPS. The aggregated effect that local-level policymaking based on equity concerns can have on the sustainability of cities and wellbeing in the urban environments is crucial for the achievement of national SDGs.

## 2. Method

The new planning strategies have had to recognize social equity as one of the guidelines in planning of UPS, in which there is special attention to recognize groups of low income and those that are most vulnerable. In this work, we focused on two aspects of social equity in the planning of UPS: the spatial equity and the public policies that set the base for it. The conditions of spatial equity were clarified by statistical analysis of the amount of UPS area/inh, and a spatial analysis of the distribution of UPS (GMaps and QGIS) related to socio-demographic data in Atizapán [44]. The National Geographical and Statistical Institute of Mexico (INEGI, [45]) has abundance of useful socio-demographic data that is open and easily available. However, the information systems and their updates are complicated at local level due to the management periods in Mexican municipal governments (3 years), institutional capacities, a lack of strategic vision of the territory, and a lack of budgets for the generation of information that allows evidence-based decision-making. For example, the inventory list of UPS that was obtained from the Municipality of Atizapán was formed during the update of the 2015 Municipal Development Plan, however it is still not officially published. This is the reason why, in many cases, the research on local level is based on data several years old.

The analysis of public policies was based on identification of the level and scope of omissions or inactions manifested in the attention, tensions, interrelations, manipulations, and biases that exist around a public problem, and allowed for a qualitative analysis of governance with the general indicator omissions in public policy. It is important to recognize that public policies are not considered as linear but complex processes [39,40]. This allows us to recognize the social order in which policies operate, with perceptions, interests, and relationships between various agents and the aspects provided

by the value systems, ideologies, beliefs, and discourses [46] that influence the decision making of public policies and community order [47].

For the purpose of the analysis, the following indicators were established: Indicator 1. Community pressure for the resolution of environmental and urban problems associated with UPS and their governmental response; Indicator 2. Good practices or policies from other municipalities and countries; Indicator 3. The budgetary allocation of the rescue, maintenance, and installation of existing public spaces in this municipality.

As can be seen in Table 1, the indicators that were designed to analyze the omissions were selected under the criterion of having “measurement” elements and means of verification that allowed their analysis. The tools and techniques for obtaining data and information on omissions were released official documents, journal articles, as well as the information generated by interviews of various local actors (public officials, neighborhood leaders) and the participant observation and fieldwork in the study zone and was carried out between 2013 and 2015. The interviews were structured based on the following questions:

**Table 1.** Selected indicators for the analysis of omissions in public policy associated to UPS.

Indicators	Objectives	Verification methods
1. Community pressure for the resolution of environmental and urban problems associated with UPS and their governmental response	Identify priorities, demands, claims, and complaints regarding urban and environmental public problems in the municipality. Explore the type of answers from the authorities to these demands.	a. Review of newspaper articles in the journals <i>Periódico Dinamik y Periódico Adelante</i> between 2013–2015; b. Four interviews with leaders of different social organizations, neighbors, and citizens; Interviews with three public officials involved in the creation of public policy associated to UPS; c. Document review of inform bulletins, programs, and governmental actions (2012–2015); d. Field observation of UPS.
2. Good practices or policies from other municipalities and countries	To recognize if even with the technical information provided to decision makers to carry out the required public policies, they did not act against the problem.	a. Review of newspaper articles in the journals <i>Periódico Dinamik y Periódico Adelante</i> between 2013–2015; b. Latest research regarding indicators related to UPS on national, regional (Latin America), and international level.
3. The budgetary allocation of the rescue, maintenance, and installation of public spaces in this municipality	Recognize by means of budget allocation and expenditure, what level of priority do public spaces have in relation to other urban and environmental aspects.	a. Document review of budget allocation and budget used (2013/2014/2015).

Source: the authors.

### 2.1. Interviewee Data

a. Name and training?; b. Area and position in which you work or have worked?; c. Please indicate your working time period; d. Do you know the municipality well?

#### I. Characteristics of the public space

1. When I say “public space”, what do you think about?

- What characteristics (attributes) should a public space have?

#### II. Public space problem

2. What are the main problems regarding public space in the municipality?

- What are the problems identified in the most important public spaces and why?
- Do you consider there is a tendency to decrease public space? If yes, what is the reason?
- Do you think it is important that public spaces have access roads?
- Do you consider that public spaces are well distributed in the municipality?
- Who benefits from having public spaces?
- Do you think there are population groups that use public spaces more? If yes, why is it so?
- Do you think there are sectoral groups that need them more?

III. Public space policy

3. Considering all the problems that the past administration faced, how relevant do you think the public space issue was? (The bullet points questions below are control questions to complement the open question listed, in case the interviewee does not give enough information)

- Why was it relevant or why wasn't it?
- What was the most relevant issue?
- What were the most important policies of public spaces in this administration and in the previous one (2012–2015)?
- What were your successes regarding public space?
- What did not work in planning the public space?
- If you were responsible for this policy, what changes would you have made to public space policies and how important would public space have been in your policies?

IV. Citizen participation and responsibility of public space

4. Considering that the public space does not only belong to the government, but also to the citizens, how do you evaluate the interest of citizens in public spaces?

- Could you describe the profile of organizations interested in public space? What kind of complaints/demands did they express (if the interviewee is a citizen or from a social group) or receive (if the interviewee is from the government)?
- How has the government's link with these organizations been? Has your participation been constructive?
- What happens to citizens who are not from organizations?
- Do you identify some other groups or sectors that are particularly interested in public space or that are more interested than others?

5. In your opinion, who should be responsible for maintaining public spaces?

6. When you state that the government does (paraphrase), do you consider that this action benefits all people, or benefits only some groups?

For this research, the UPS units of analysis were selected based on the following criteria: (a) spaces used for recreation, (b) spaces for social coexistence, (c) spaces that have green areas within the residential zones, and (d) spaces for physical activation and sports recreation of the population. Thus, a typology was established that include: (1) Urban Green Areas (Areas Verdes Urbanas) that may contain pastures, shrubs, plants, and to a lesser extent trees, and that are located within the urban environment [48]; (2) Peri-urban Parks or Forests (Areas Naturales), (3) Communal gardens and urban parks; (4) Playgrounds, outdoor gyms, and public sports; (5) Traffic islands also used for sports (Av. Jinetes-Bebederos), and (6) Public neighborhood squares. From this typological set up, it was possible to obtain the proportion of the total UPS area of the municipality for this study and analyze the distribution by type of space (Table 2). As can be observed in Table 2, the largest areas are found in the Urban Parks and the Park "de los Ciervos" that together comprise 0.47% of the total municipal area.

**Table 2.** Distribution of UPS area by type (Source: The Municipal development Plan PMDU 2015).

Type of Space	Area (ha)	% of Area in the Total Municipal Area
Children playgrounds	6.5567	0.07%
Communal gardens	3.4221	0.04%
Urban parks	19.0491	0.20%
Park de los Ciervos	26	0.27%
Public sport areas	6.3387	0.06%
Protected natural area	274	2.81%
Total	61.3666	

## 2.2. Atizapán de Zaragoza

Atizapán de Zaragoza is located in the northwest Metropolitan Zone of Mexico City (Figure 1). The distance between the center of Mexico City and the head of the municipality of Atizapán de Zaragoza is 23 km [48]. According to the diagnosis of the Regional Program of the Tlalnepantla Region XII (IGECEM, 2012, [49]) to which Atizapan de Zaragoza belongs, this municipality is in a process of metropolitan consolidation since the fifties with respect to Mexico City. This brought about the necessity to generate strategies for the urban growth of Region XII Tlalnepantla since from the 1960's to the 1990's the municipal population has increased tenfold, and especially in the period from 1970 (44,322) to 1980 (202,248) [48]. From 1995 to 2000, the municipality of Atizapán presented a deceleration in its population growth, and in 2015 there were 489,937 inhabitants [48]. It is worth mentioning that the proportion between men and women is very similar and that the number of households was 127,206 with an average size of 3.8 members and, mostly with male house heads.

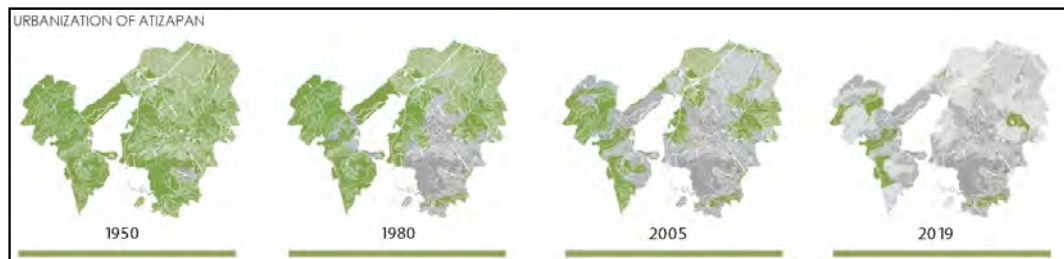


**Figure 1.** Location of the municipality Atizapán de Zaragoza in Mexico (by authors, data INEGI).

At the beginning of the 20th century, the municipality of Atizapán de Zaragoza consisted of villages with rural characteristics, which presented moderate urban growth. From the 1950s, due to the economic growth of Mexico City, began the concentration of industrial, commercial, and service activities in Atizapan (Figure 2), mainly along the arterial road to Querétaro in the north [50]. Concurrently, being one of the municipalities near the center of Mexico City, it was also an attractive

destination for the migration of Mexico City residents in search for a space free of atmospheric, acoustic and visual pollution and environmental deterioration [51]. Its west horn, called zona Esmeralda, is considered one of the wealthiest in the State of Mexico and Mexico City Metropolitan, with numerous country clubs, large golf terrains, and private green areas [36].

Since the 1960s, to avoid the disorderly growth of these areas the government granted facilities for the creation of residential and industrial subdivisions. By the 1970s and 1980s, the urban growth of the municipality had increased significantly transforming some towns into new urban settlements, a situation that generated the lack of an urban structure that would ensure proper functioning of the area [41]. It is in this period that the green areas decreased in a drastic manner.



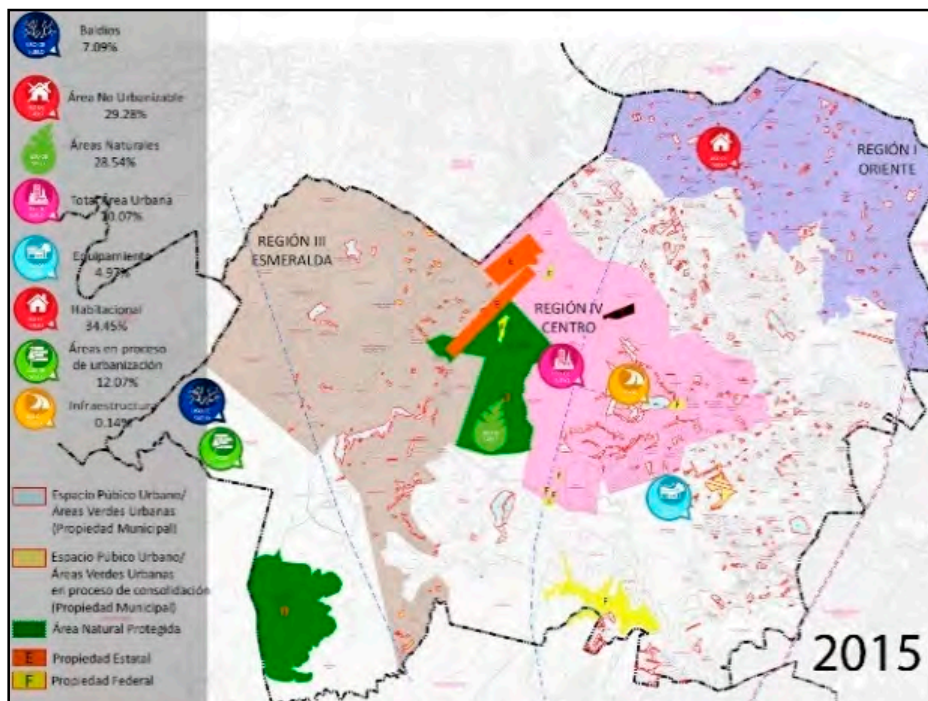
**Figure 2.** Urbanization process of Atizapán de Zaragoza 1950–2019; green-natural areas; grey-urbanized areas (by authors with data from PMDU 2015, [44]).

It is important to mention that even though in areal images it might seem that there are many green areas in the municipality, those that are public, accessible, and of quality are much less. In Figure 3, we show the disproportionate area allocation between private and public green areas in Atizapán. Private Green areas are considered individually owned properties with strictly regulated access, such as golf clubs and private sport facilities dominant in the Southwest region. Public green areas are municipal public parks and communal gardens with free access. As a result of fragmented urbanization and lack of integrative development strategy, a third category of green areas can be observed in empty lots or wastelands that we named in this study residual green areas. The update of the Municipal Urban Development Plan [52] was very useful to recognize the distribution of land use. In Figure 4, the urban land use is presented consisting of: (1) 34.45% residential areas; (2) 4.97% equipment (category within which UPS is integrated); (3) 7.09% vacant, which should be evaluated as residual spaces; (4) 12.07% in process of urbanization which was often observed as unorderly development without a sustainable vision and care for the environment; and, finally (5) 28.54% protected natural areas and 29.28% non-developable land, which if handled properly could be an opportunity for environmental services that the development plan should consider.

The zone performs the function of a dormitory municipality, in which most of its inhabitants move to other areas for work, do commerce and acquire services. According to the Origin-Destination Survey conducted by INEGI [49], a total of 607,392 trips were registered in the municipality in 2007, occupying the fifth place in the State of Mexico where the survey was conducted.



**Figure 3.** Green areas in Atizapán de Zaragoza. (figure by authors, with data from PMDU 2015 [44], Google maps, and field survey).



**Figure 4.** Land uses in Atizapán de Zaragoza (figure by authors, with data from PMDU 2015 [44], Google maps, and field survey).



### 2.3. The Spatial (in) Equity in Distribution of UPS

As can be seen in Table 3, the municipality is divided into two large populated areas due to its topographic and density conditions, its road communication structure, and the land uses that predominate in each of them.

**Table 3.** Distribution of urban population in Atizapán de Zaragoza (elaborated by the authors, with data from INEGI 2015).

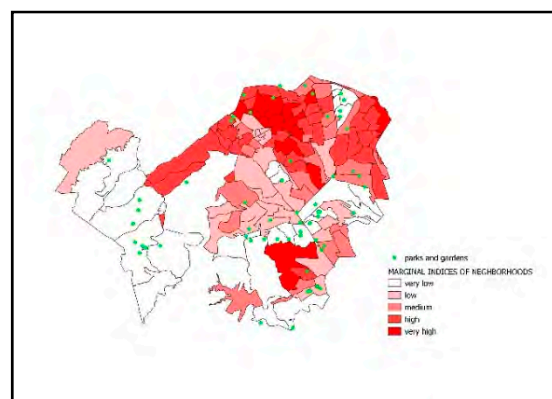
Locality	Urban Area	Population	Medium Density
	km <sup>2</sup> (%)	Inhabitants (%)	Inh/km <sup>2</sup>
Northeast	40.9316 (63.32)	462,820 (94.47)	11,307
Southwest	23.7121 (36.68)	27,117 (5.53)	1143
<b>Total</b>	<b>64.6437 (100)</b>	<b>489,937 (100)</b>	<b>100</b>

The high rates of inequality in access and opportunities for urban offers are related to the socioeconomic status (economic income) of the various social groups that inhabit a territory. Thus, public space (including urban green areas) is one of the many expressions of social and spatial fragmentation mechanisms that tend to reinforce each other. This inequality is reflected in the immediate environment, considering that environmental pressures depend largely on the level of income and development, leading to the fragmentation, segregation, and privatization of space, as well as the vulnerability generated by the negative effects of deterioration, environmental, and natural threats and climate change [53,54].

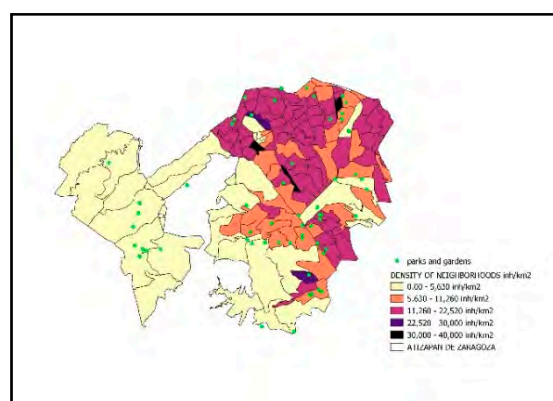
In order to measure the level of correlation that exists between the socioeconomic level and spatial inequity, we analyzed the marginalization index as one of the indicators that are available in most Mexican municipalities. Therefore, we correlated the distribution of public parks and communal gardens (typologies 2 and 3 in Table 2) with the marginalization and urban density on neighborhood level to analyze and assess the spatial (in) equity of UPS distribution in Atizapán. For the purpose of this analysis, we focused only on these typologies of UPS because the inventory that we were able to obtain from the Municipality of Atizapán was most complete for those types. First, we georeferenced and mapped all the public parks and communal gardens (58) in QGIS, based on the inventory list that contains only names and addresses of UPS, using Google Maps, Google Earth, and field survey observation. Secondly, we added the layer of neighborhood marginalization index, taken as a ready shapefile from the open map database of Population National Commission (in Spanish, Comisión Nacional de Población, Conapo, 2015 [44]), and performed a count points in polygon analysis to estimate the number of parks and gardens in each neighborhood with varied marginalization (Figure 5). The marginalization index scale is defined by Conapo in very low (most affluent neighborhoods), low, medium, high, and very high, and is a result of an integral assessment based on 10 separate indicators: (1) Percent of population aged 6-14 that are not enrolled in a school, (2) Percent of population aged 15 and more that do not have secondary school education, (3) Percent of population without social security, (4) Percent of child deaths for women aged 15 to 49, (5) Percentage of private homes without piped water inside the home, (6) Percent of houses without drainage or public network of septic pits, (7) Percentage of private homes without toilet with water connection, (8) Percentage of private homes with dirt floor, (9) Percentage of private homes with some level of overcrowding, and (10) Percentage of private homes without a fridge.

We found that: (1) The majority of high and very high marginalized neighborhoods are located in the northeastern part of Atizapán and comprise 26.8% of the total urban area (Table 4); (2) only 7 (12%) from the 58 parks in Atizapan (green dots, Figure 5) are allocated in the high and very high marginalized neighborhoods, while 38 (65.5%) are found in the western and central parts and in neighborhoods with low and very low marginalization. When we considered the staggering difference in urban density between the Northeast and Southwest areas in Atizapan (Table 3, medium density),

the need to further analyze the spatial distribution of parks and gardens in relation to neighborhood scale density became evident. For that purpose, we performed a calculation of urban density in all the neighborhoods based on the 2015 data from Conapo [44] regarding area and population size of each neighborhood. We found that the majority of high marginalized neighborhoods are also the most populated ones, with densities more than 11,260 inh/km<sup>2</sup> or 3 times higher the Municipality average (5630 inh/km<sup>2</sup>). Finally, we overlaid the location of parks and gardens with the neighborhood density in QGIS (Figure 6) and again performed a count points in polygons analysis. We found that only 17 parks (30%) are located in neighborhoods with densities more than 11,260 inh/km<sup>2</sup> or the most populated areas. The most discriminated areas in terms of proximity to parks, density, and marginalization are almost all located in the northeast of Atizapán. If we consider that the Northeast houses nearly 95% of the total population, the magnitude of the spatial inequity in distribution of public parks and communal gardens in Atizapán becomes evident. The results show that the level of income is correlated with the allocation of urban public spaces in the municipality, which results in a differentiation in the access to environmental services of public spaces, confirming the unequal distribution of public spaces.



**Figure 5.** Marginalization index and public parks. (this figure is by authors, with data from Municipality of Atizapán and Conapo 2015 [44]).



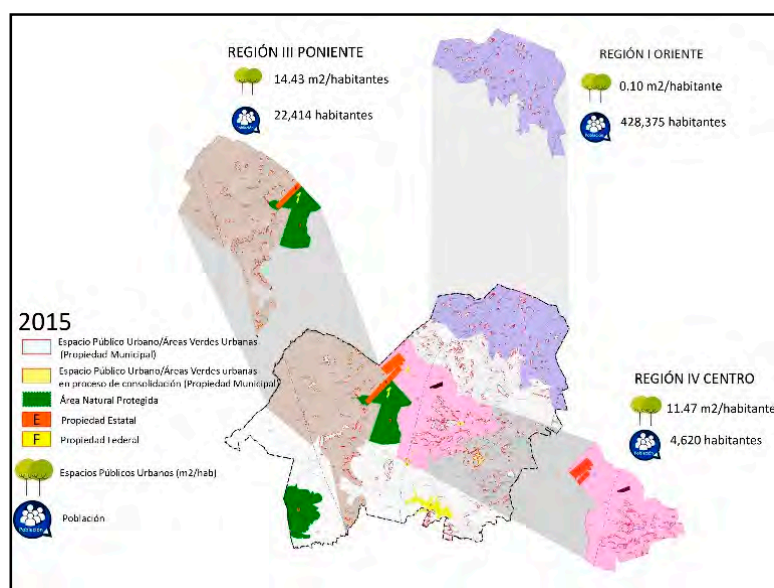
**Figure 6.** Urban density and public parks. (this figure is by authors, with data from Municipality of Atizapán and Conapo 2015 [44]).

**Table 4.** Quantitative distribution of the marginalization in zones (elaborated by the authors with data from Conapo, 2015 [44]).

Marginalization Index	No. of Hoods	Location of Neighborhoods			Mean Area km <sup>2</sup>	% of Total Municipal Area
		West	Central	East		
Very low	29	7	16	5	0.98	39
Low	27	1	17	9	0.55	20.25
Medium	24	0	9	15	0.42	13.95
High	36	3	2	31	0.37	18.27
Very high	17	0	1	16	0.36	8.53
Total	133 (53)	11	45	76 (47)		100% (26.8%)

#### 2.4. The UPS Area/Inhabitant in the Municipal and Micro-Regional Scale

We assessed the deficit of UPS and green areas in Atizapán for m<sup>2</sup>/inhabitant, with the data from the Municipal Development Plan of 2015 [44]. The calculations were based on the simple formula: A/B, where: A =  $\sum$  UPS m<sup>2</sup>; and B =  $\sum$  inhabitants. The result for all the municipality of Atizapán was 1.14 m<sup>2</sup>/inh = 613,666 (m<sup>2</sup>)/535,435 (inh). This calculation for all types of public spaces allowed the verification of the general situation in terms of insufficient amenities provided. However, the perspective of global calculation does not allow for micro-regional assessment of the UPS area insufficiency in different regions that comprise the municipality. Of the seven regions of the municipality established in the Municipal Development Plan of 2015 [52], the three most emblematic regions were selected for a more detailed analysis of UPS area sufficiency at the micro-regional level. These are: Region I. East (ORIENTE in Figure 7); Region III. West (Poniente in Figure 7); and Region IV. Center (Centro in Figure 7).

**Figure 7.** Micro-regional distribution of UPS (by Pérez-P, 2016).

The micro-regional analysis of the UPS in the three regions of Atizapán in 2015 was carried out by a quantitative and geo-referential analysis through the specific calculation of UPS surface area in each region and per capita. The results indicate the staggering unequal conditions, in which the West region with the highest socioeconomic status and least inhabitants is the most privileged with more than 50% of the total of existing UPS in the municipality and 14.43 m<sup>2</sup>/inh, while the majority of population in the Northeast has only 0.10 m<sup>2</sup>/inh available. The unjust distribution of UPS will be further analyzed from urban planning and equitable governance approach in Section 3.

### 2.5. The Omissions of Municipal Public Policies Associated to UPS

The present research considered the variable of “omission of public policies” as the most pertinent to qualitatively explain how municipal public policies directed to UPS are sustained in the unjust distribution of UPS. The theoretical framework of omissions was considered optimal because it offers a broad perspective on the processes involved in the interpretation of the problem of UPS (the social construction of the problem), as well as the social, ideological, environmental, economic, and political forces that intervene and interact in the public sphere or not. Thus, the analysis considers the context of intentional burden of the non-decision of actors involved in the public policy decision-making associated to UPS in the municipality. We argue that although it is the actions that influence the state of a situation, it is the omissions that can provide other elements of analysis that characterize public actions; for example: interrelationships of power, biases, and obstacles, among others, that allow a problem to appear as public and thus, its solution needs to come from the cycle of public policies [41].

The manifestations of municipal public policies omission directed to UPS were analyzed through indicators developed in the doctoral dissertation of Perez-Paredes, E. [43], whereby the theoretical and analytical proposals of Crenson [42] and Harvey [26] were reviewed to analyze omissions and spatial inequalities. For the purpose of the analysis, the following indicators were established: Indicator 1. Community pressure for the resolution of environmental and urban problems associated with UPS and their governmental response; Indicator 2. Good practices or policies of other municipalities and countries; and Indicator 3. The budgetary allocation of the rescue, maintenance and installation of public spaces in the municipality.

Indicator 1. This indicator identified that the situation and requirements of residential groups who are motivated to maintain their UPS in order to keep the value of their properties (thus not involving public good perspective) is moderately articulated, has power, information resources, legal support, and media impact, which facilitates the dialogue with the local government. Thus, a selective omission occurs when responding to the demands of mobilized groups, without addressing the urban environmental needs of disadvantaged groups who have failed to overcome internal conflicts and tensions. According to the field observation, the review of newspaper articles in local media and interviews with key actors, it was identified that the actions, carried out by the various government offices of the City Council of Atizapán de Zaragoza responsible for policies aimed at public space (maintenance, works, and improvement), are strengthened by the level of neighborhood organizations with economic, political, and technical-educational power, thus there is omission of public policy aimed specifically at the population with lower economic resources. This is largely due to sectoring and discretion of the policy in which the demands and responses to demands of other citizen groups that are not well organized are not exposed or answered in an articulated and equitable way. We call this process selective omission, since it depends on the social, economic, and political sector to which the appropriation of an inclusive public policy with coverage for all sectors of the population belongs.

Extract from an interview: “They want to start again (the consultation of the urban development plan) because the president has a lot of pressure from the Bellavista ladies group. He wants to start over ... the plan was completed, but, due to political issues of the state government it has become complicated.” (Areli, former city hall official)

Extract from an interview: “Here with the ejidatarios an ecological reserve was made and 4 hectares were taken from us. I began to review the papers and I see that 10 years ago, CORETT (Commission for the Regularization of Land Tenure) designated an ecological reserve with 11 hectares and said they owned it. And no, it turns out that we have half of this land as an ecological reserve ... Some ejidatarios do not agree, but the heads do, because they already saw that there is nothing to do.” (Popeye, community representative)

One of the results that the case study exposed is the absence of a general organized front of citizen that have an articulated impact on urban environmental policies. On the other hand, exists solid neighborhood and citizen organizations of specific residential areas in which the central motivations of their activism and local lobbying is to maintain the land prices of their homes and the surplus value of

their residential areas. Thus, the main motivation is based on private interests that represents weak approach to the right to the city in which the public nature of the urban space is not claimed.

Indicator 2. We analyzed good practices from the neighboring municipality of Tlalnepantla which is a member of the Northeast Region XII of the State of Mexico and also shares the same regional plan with Mexico City. This was done for two reasons: the first reason involves reproducing the method of Crenson [42] established to measure the omission of a city policy compared to a neighboring city with which it shares the same environmental problem regionally; the second reason was to clarify if the government of the municipality of Atizapán de Zaragoza recognizes the good practices existing at local/regional level and manifest omission of policy even if it is aware of good practice close to its borders. According to the revision of the regulations of Tlalnepantla (Municipal Government of Tlalnepantla, 2013, [55,56]) and the official documents of the government of Atizapán, it was observed that the two municipalities describe very differently the vision they have about municipal policy associated with UPS. The public agenda of Tlalnepantla does have an approach to urban governance that is embodied in the effectiveness, quality and proximity of public management [57]. This approach is following the recommendations of international agencies such as UN-Habitat [48] aimed at promoting sustainability at local level with an urban agenda. On the other hand, the research of public policies in Atizapán showed the absence of an urban public agenda and a lack of strategic vision on its local environmental urban development.

Indicator 3. Under the assumption that what is not budgeted is not planned, the budget allocation and the expenditure allocated to government actions associated to UPS were considered pertinent for the analysis of omissions. Through document survey of official budget allocation reports in the period of 2013–2015, it was observed that in the first period of 2013–2014, the UPS with greater public investment were sports and recreational spaces (7.5 million pesos per work), allocating 30% of the total investment to only one sports venue (“Ana Guevara”). In the second period of management (2014), the same items of expenditure were established, which allowed comparing both periods and identifying increases in maintenance and improvements of public spaces in 115 colonies, without explicitly declaring the exact location of interventions. Finally, in the last report that corresponds to the year 2015, we identified that 10 million pesos less were allocated to UPS, while the same public works were reported as in 2014. Another element that stands out is that in this period the expense of “Sport and Recreation” was reduced almost 50% without a specific explanation. According to the results obtained from this information, we concluded that the budgetary reports of the expenditure and the access system to public information have limitations because they do not have specific information on the expenditure designated to the production of UPS and the expenses for its maintenance.

We started from the definition of public policies as “guidelines that allow the decision-making process to achieve the urban development objectives”, defined in our case study through the Municipal Urban Development Plan (PMDU) of 2015 [52]. Even though the municipality of Atizapán de Zaragoza does not have an explicit or strategic approach to public policies aimed at UPS, according to documents review we identified local government actions aimed at public space and urban green areas from the town hall and decision makers. However, if the policy is considered as a set-sequence of decisions in response to problems and needs that the action or inaction implies, then we can confirm that there are only isolated actions to maintain green spaces and renovate sports or leisure facilities but not a sequential strategy. Although the existence of government actions directed at urban public spaces in the period 2013–2015 was already verified, it was also found that there are different types of omission in municipal public policies that have had effects on the time and scenarios projected by the 2003 Development Plan in relation to environmental improvement and urban planning. The review of the accomplishments reported by the 2015 PMDU allowed us to corroborate the existence of omissions to develop strategies that achieve municipal sustainability in which urban planning is strategic.

### 3. Results and Discussion

The results of our study show insufficient area per capita and spatial inequity related to the UPS planning in the municipality of Atizapán de Zaragoza, Mexico City Metropolitan periphery. On municipal level, the UPS area per capita is 8 times less than the recommended threshold by the WHO. Further, the micro-regional analysis shows that this average is grossly uneven between the Northeast (0.10 m<sup>2</sup>/inh, 12% of all public parks) and Southwest and Central (14.43 m<sup>2</sup>/inh, 65.5% of all public parks) regions, thus there is a lack of spatial equity in the distribution of UPS. While the uneven distribution of UPS can be discussed in terms of lack of horizontal equity or unjust distribution of public amenities for all, the matter becomes more complex if we consider the vertical equity or the need to provide disproportionately more public amenities to vulnerable groups. The results of neighborhood marginalization and urban density show significant concentration of vulnerable groups in the Northeast, precisely in the areas where UPS is lacking the most. Therefore, the future challenge to improve the spatial equity gains greater magnitude. Finally, our analysis of the municipal public policies related to UPS planning and maintenance identified an omission of municipal strategy for equitable planning of UPS and more specifically, a selective omission resulting from a bias towards less affluent and poorly organized groups without significant economic and social influence. The omission indicators provide sufficient evidence to support our hypothesis that today the omissions and the unclear role of public policy in the equitable planning and distribution of UPS are significant obstacles to improving the spatial equity. In the larger context of Latin America, our analysis supports the conclusion by Segura [58] that even though many large cities like San Paolo, Mexico City and Buenos Aires have managed to reduce the income inequalities, the urban fragmentation and social segregation of the growing metropolitan periphery persist. Segura points out that a new inclusive land use policy is urgently needed to improve access to the city and public goods. In this context, we argue that the aggregated effect of omission of public policy in terms of equitable UPS planning in large Latin American metropolises can have significant consequences in failing to achieve the globally set 2030 Sustainable Development Goals, specifically the goal 10-Reduce inequality within and among countries and goal 11- Make cities and human settlements inclusive, safe, resilient, and sustainable. Moreover, the research by Fjelde [59] indicates that both the form and degree of government have significant influence on the risk of civil conflict. The conclusion is based on a statistical analysis of inter-group conflicts in Nigeria, where the patronage politics, or the provision of public goods to retain the support necessary to stay in power, was found to increase the risk of conflict. Different to our study, Fjelde based the analysis on the redistribution of large incomes from oil reserves in Nigeria that has significantly more direct and immediate impact to socio-economic structures. However, since UPS has been found to have an effect on mental health, social ties, and security, as discussed in the Introduction, we argue that the spatial inequity in distribution of UPS could potentially generate risk of conflict between local groups in the long term. On the other hand, Rothstein and Teorell [60] recently proposed more coherent definition of quality of governance in the “impartiality of institutions that exercise government authority”, especially relevant to analyze the economic growth and social welfare in developing countries. In this context, if we consider the UPS as a public good derived from budgetary provisions, the selective omission in the distribution of this public good can be understood as patronage politics that can increase inequality and the risk of inter-group conflict.

Since 1916, the Mexican law adopted administrative sanctions for public servants' omissions that affect the efficiency of their work [61]. However, there are very few bases to prove the accountability since the link between the omission of public policy and the resultant spatial inequity is not clear in previous research. Our study aims to provide that base for discussing and demanding accountability of public policy in the planning of UPS based on results that clarify the extent and geo-localize the spatial inequity. From the selective omission indicator, we found that often the blame is placed on unorganized citizen groups that do not articulate their equity claims clearly, therefore do not obtain access to public goods. However, Williams [62] argues that spatial equity should be understood “not as a normative evaluation – as an ethical state in which “space” is just or unjust – but instead as an analytic

framework that investigates how spatial relations produce equity.” He argues that spatial relations can actually produce equity relations and influence the creation of social collectives that produce equity claims. Therefore, the discussion of bias towards unorganized neighborhoods should be refocused to the discussion of how omission of policies in UPS planning is not a result of but in fact produce and perpetuate the social segregation, and therefore spatial inequity. Herein might lie the answer to why the reduced income inequality in Latin American metropolis does not automatically bring about spatial equity improvement. Until the omission of public policy for equitable spatial planning persists, there can be no solid base for formation of healthy community that can demand those changes. Bayat and Rezvanpour [63], in the case study of Teheran, similarly concluded that until the real reasons that have historically produced the spatial inequity are in place, such as the traditional mechanisms of unfair resource allocation, production methods of society, and hidden mechanisms of urban space, there will be no urban improvement. Moreover, as Dikec [64] points out, the right to the city can vary drastically depending on the society in question and the meaning attached to principles of equity, especially if the social segregation and discrimination have been clearly demarcated. In this aspect, our study can serve to inform emancipatory politics willing to confront spatial dynamics that produce and reproduce various forms of inequity. Further research should be aimed at clarification of the mechanisms of spatial production on micro-regional level and developing locally adapted tools for equity based public policy in planning. For this purpose, we find the five objectives of Zuniga-Teran A. A et al. [29] regarding equitable planning of urban greenspace especially useful as reference: “(1) appropriate funding mechanisms for long-term maintenance; (2) recognition of safety concerns; (3) connectivity of greenspace; (4) multifunctionality in greenspace design; and (5) community engagement”.

The challenge of our study was mainly in obtaining relevant and updated official data regarding UPS. The demographic national data is collected every 10 years, with a 5-year inter-census survey datasets also available online, thus for our research we used the latest 2015 dataset. Moreover, the local information system associated to UPS that was compiled in 2015 is still not officially published. Therefore, the limitation of this study was in working with data that is four years old (2015), meanwhile the conditions on the ground might have changed considering the fact that the total fertility rate is above 2 (2.14 for 2015, according to INEGI), the human development index high [44] and the growth index +6.67% (from 2010 to 2015, according to INEGI). Next steps are to update our study results with the new census data that will be available next year 2020 and revise the new development strategy in the next Municipal plan. With the 2019 change in government objective from rapid to sustainable growth based on the 2030 Agenda [65,66], it is extremely important to assess the effectiveness of the new development public policy associate to UPS planning. In this context, our study provides a useful methodology and reference to evaluate the improvements related to spatial equity in the UPS planning of Mexican cities.

#### 4. Conclusions

The real significance of spatial (in) equity, beyond affecting the urban environment and the development of cities, exist in the recognition that urban public spaces are social, environmental, political, and physical articulators in the cities. UPS is the essential element for guaranteeing the rights to a healthy environment in equitable and sustainable cities, considering them essential for strengthening the social cohesion of the population, governance, and appropriation that urban populations have over their public assets.

The indicators of municipal public policies omissions associated to UPS in Atizapán allowed us to explain the previously identified deficit of public spaces and the “geolocalized” spatial inequality in the conceptualization and interpretation that decision makers have on urban environmental development in the territory, the lack of a public discussion about the sustainable vocation of the municipality and the dominant values of the actors involved in the production, planning and installation of urban public space. The omission requires the analysis of power because it is one of the elements that accompanies the approach to social construction of problems, either individually or collectively, and is crucial for

the development of the content of public policy. As a result of the scope that power has in the social or collective system, it is never the property of an individual, but belongs to a group. This explains why when the group that gave rise to power disappears, the power also vanishes [58]. The lack of agenda in urban environmental planning, the lack of institutional capacities, the shortage of local information systems and financial resources, the structural issues of the city council (such as the lack of deed of the municipal land, its relationship with the state government, its lack of comprehensive diagnoses), and the difficulty of having an active, purposeful, and organized citizenship for accountability are the conditions for the omissions of public policies in urban public spaces. We recognized that the explanations of the deficit and inequity in the distribution of UPS are multiple. However, through this research we argue that the phenomenon of omission in public policies is one of the most important that prolongs and intensifies the problem through time. In future, the omission of public policies will prevent the urban, social and environmental development of the municipality, which in return will affect the quality of life of the population. Finally, through our study we emphasize the importance of delineating municipal level strategies based on socio-environmental governance that increases the agency of individuals and the strategic vision of the territory in order to reach the globally set agendas for equitable and sustainable development.

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