Urban environment and unequal urban environmental policies: a case study in Argentina

Meio ambiente urbano e políticas ambientais desiguais: um estudo de caso na Argentina

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ABSTRACT

This study analyses different and unequal urban environmental problems in the city of Posadas (Argentina), where there are different social practices of environmental care and management according to neighbourhoods. The aim was to understand and describe the action or lack of action of environmental legislation or policy concerning different urban areas. Based on a quantitative survey, the spatial context of the neighbourhoods was linked to environmental problems and policies, environmental care practices, opinions, attitudes, and social self-management processes in each neighbourhood. It describes how people living in the poorest neighbourhoods are disproportionately exposed to adverse environmental conditions and risks. Neighbourhoods in urban spaces with high environmental quality have more services, resources and government attention, while the most disadvantaged neighbourhoods in the city are also the least favoured by policies and deficient urban structures.

Keywords: Trees. Waste. Pollution. Settlements. Environmental policies.

RESUMO

Este artigo analisa os diferentes problemas urbanos ambientais na cidade de Posadas (Argentina), onde existem diversas práticas sociais de cuidado e gestão do ambiente de acordo com os bairros. O objetivo foi entender e descrever as ações ou omissões da legislação e/ou políticas ambientais em relação às diferentes áreas urbanas. Com base em um levantamento quantitativo, o contexto espacial dos bairros foi vinculado à presença de problemas e políticas ambientais, práticas de proteção ambiental, opiniões, atitudes e processos de autogestão social em cada bairro. O artigo descreve como as pessoas que vivem nos bairros mais pobres estão desproporcionalmente expostas aos riscos e condições ambientais. Os bairros localizados em ambientes urbanos de alta qualidade ambiental têm acesso a mais serviços, recursos e atenção governamental, enquanto os bairros mais desfavorecidos na cidade são, ao mesmo tempo, os menos beneficiados pelas políticas e sofrem com estruturas urbanas deficientes.

Palavras-chave: *Árvores. Resíduos. Poluição. Assentamentos. Políticas ambientais.*

1 INTRODUCTION

Today, urban marketing strategies operate under the slogan of a green and sustainable city. However, the most significant urban environmental interventions occur in distinctive urban and residential areas, increasing their economic value Connolly *et al.* (2023). Different urban spaces express socio-spatial inequalities in the distribution of opportunities and resources (Capdevielle, 2014). Therefore, we analyse here how the unequal distribution of environmental services or their inaccessibility determines the quality of life and the environmental conditions to which residents in different urban areas are exposed.

In the current climate crisis, environmental policies take on an unusual relevance, adopting mechanisms to mitigate new environmental adversities: pollution, emissions, drought, rising temperatures, fires, etc. In this context, the Posadas government agenda has developed urban environmental programmes and policies, accompanied by the discourse of sustainable and resilient cities.

In the city of Posadas, since 2020, the municipality has been carrying out various actions under the slogan "A sustainable, greener, modern and innovative Posadas". Specifically, it has promoted environmental education, differentiated waste collection, the provision of containers, recycling and the circular economy, the construction of cycle paths, urban reforestation, composting and fertilisation programmes, and the use of pruning chips in public spaces, among other actions. On the negative side, however, it has been noted that all these actions are more intense in some sectors and neighbourhoods of the city, as well as the absence of in-depth environmental policies to control vehicle emissions and household incineration, and the weakness of environmental protection legislation (Brites, 2022b).

In addition to pollution and other environmental crises, urban spatiality plays a crucial role in determining the distribution of environmental problems within a city. Some areas may experience more chronic problems than others, leading to inequalities in urban health and health vulnerability. This leads to reconsidering environmental inequalities due to their interaction with other forms of inequality that exacerbate disadvantage and environmental risks.

This article highlights the importance of understanding pollution and risk as environmental inequalities, a category that refers to the adversities of a polluted environment, exposure to risks and various vulnerabilities of the urban environment. It is, therefore, another factor contributing to urban inequalities. As a contribution, the discussion highlights the inequalities created by urban policies that disproportionately affect the quality of life and habitat of low-income sectors. Sustainability policies do not consider the costs associated with pollution and its effects.

2 THEORETICAL APPROACHES

The environmental problems faced by Latin American cities are at the forefront of the sustainability debate. However, the actions taken to address these issues have not been equitable (Fernández *et al.*, 2023; London, 2018). Pollution and socio-environmental vulnerability affect urban ecosystems and directly impact the deterioration of urban quality of life and population health. It is important to remember that a clean, healthy and inclusive environment is demanded by the more equitable approach to environmental justice proposed by Harvey (1996).

Environmental risks in the context of climate change are variable, and their study is at the centre of political agendas and mitigation plans (Zulaica; Vázquez, 2021); on the other hand, the issues of climate change and environmental justice demonstrate the correlations between socio-environmental patterns and conditions of social vulnerability (Travassos *et al.*, 2021).

In recent decades, urban growth and its different functionalities have generated negative environmental impacts unequally distributed among the population, with severe environmental

problems disproportionately affecting lower-income sectors or communities (Krieg; Faber, 2004; Walker; Bulkeley, 2006). A context in which urban and environmental inequalities shape unequal ways of inhabiting space (Suárez, 2021).

The unequal environmental costs and benefits of policies generate differential and unequal impacts. For example, differential access to environmental goods such as clean air, clean water or green spaces (Alves Prates, 2007; Brites, 2022b; Pi Puig, 2021) are indicators of environmental well-being. However, different inequalities (socio-spatial, residential, environmental, etc.) lead to a more repetitive urban landscape in many cities.

Investments in infrastructure and the restructuring of public spaces (boulevards, gardens and parks) are accompanied by new and renovated comfortable buildings for sectors with greater purchasing power (Brites, 2019). On the other hand, waterfronts and green spaces have been identified as landscape resources (Santasusagna Riu; Tort Donada, 2019) and environmental and tourist resources for urban and real estate requalification. A process that reinforces class inequalities and increases dispossession (Casgrain; Janoschka, 2013).

Sustainable urban policies, accompanied by the search for capital gains, create beautified and landscaped urban environments and new peripheries of neglected neighbourhoods with environmental degradation. Areas of extreme poverty and pollution overlap to create hyper-degraded urban areas (Davis, 2006). The advance of real estate dynamics reorganises the city and leads to the creation of areas of high environmental vulnerability, such as poor neighbourhoods and suburban settlements, sometimes "located on rubbish dumps and swamps and with very high levels of pollution" (Curutchet; Grinberg; Gutiérrez, 2012, p.173). Peri-urban or suburban spaces appear as 'hybrids' where rural and urban areas are often difficult to distinguish (Ferraro et al., 2013; Galindo; Delgado, 2006), spaces where environmental legislation often does not reach or is not enforced.

From an ecological point of view, the emergence of poor and vulnerable neighbourhoods refers to the lack of green spaces, lack of zoonosis care, contamination of soil, water and air (internal pollution) or due to proximity to industrial areas or high pollution production (London, 2018). Some studies (Fernandes, 2011; Fernandez *et al.*, 2023) point out that the frequent expansion of informal settlements in urban peripheries has led to the loss and degradation of natural habitats. In addition, governments have allowed urban expansion in areas prone to environmental risks with a lack of infrastructure and services. Many vacant plots of land are vulnerable to uncontrolled waste dumping on the outskirts of the cities, creating environmentally unsustainable areas and waste disposal sites, commonly referred to as "open dumps" (D'hers, 2013, p. 2).

Environmental inequalities can also be analysed from the operational category of Critical Urban Deficit Areas (Barreto *et al.*, 2014), which analyses a highly fragmented part of the periurban residential space where unequal neighbourhoods coexist (in terms of physical and social characteristics), characterised by segregation, disconnected territories and lack of urbanity. As in the periphery, critical urban deficit areas are characterised by deficits in infrastructure, services, facilities and accessibility problems, environmental vulnerability and, in some cases, water risk areas (Alcalá; Rus, 2017).

Flooding and lack of infrastructure works result from the various links between vulnerability and risk hazards: socioeconomic, material, physical and environmental (Biffis *et al.*, 2022). An idea that suggests that the experience of living in degraded urban margins involves environmental suffering, which is expressed in a link between social vulnerability and environmental risk (Scharager, 2017).

Studies have found significant differences in the environment and quality of life according to socioeconomic conditions between households in poor or disadvantaged neighbourhoods and residents of upper-class neighbourhoods (Flacke *et al.*, 2016). Gómez and Velázquez (2018) observed that in the peripheries, there are more unfavourable areas for quality of life, according to a relationship

between the number of inhabitants and the area of public green spaces. This allows us to understand how the characteristics of the social context are reflected in environmental and health inequalities.

For example, air pollution is unevenly distributed within cities, which can lead to urban health inequalities (Pierangeli *et al.*, 2020). Thus, in addition to environmental inequalities, some authors (Garzón-Duque *et al.*, 2016) highlight the social determinants of health, which create huge inequalities in the probability of falling ill and the risk of dying prematurely, that is to say, in a way that is not natural but socially determined, which could and should be avoided.

Beyond the impact of environmental adversity, in a climate crisis scenario, we are talking about socio-environmental vulnerability (Daga *et al.*, 2015; Ortiz Espejel *et al.*, 2015), a phenomenon that has a greater impact on low-income sectors, where the risk of exposure to new and unusual threats is greater, regardless of the characteristics of the environment.

3 METHODOLOGIES

The study area included the city of Posadas in its different urban sectors (city centre and surrounding areas, western, southern, and south-western districts). The main methodological approach was a quantitative and exploratory design, carried out in two stages: the first through an online web form and the second through field surveys. The research collected information from a probabilistic sampling by cluster, involving 322 people living in different neighbourhoods or sectors (clusters), then the selection of cases to make up the sample followed a random criterion within each neighbourhood.

Table 1 – Distribution of analysed cases by cluster

Type of conglomerate	*Sectors or Neighbourhoods*	*Frequency*	*Percentage*
Social housing districts	Villa Cabello, A-4, Yacyretá, Santa Rita, 80 viviendas. 90 viviendas. Chacra 32-33, Cocomarola Oeste. Giovinazzo (autódromo). Itaembé Miní. Itaembé Guazú, Hipotecario (ch.124). Las Orquídeas. Los Jilgueros. Prat, San Isidro, M. Lanús (A-3.2). Nemesio Parma, Sesquicentenario, Papel Misionero (Ch.122), Prosol, 10 de Junio.	72	22%
Settlements or popular neighbourhoods	Santa Rosa, Aeroclub. Chacra 252. El Mangal. Los Lapachitos, Ita Verá (Ch.145). Chacra 178. Los Lapachitos. Los Oleritos, La Tablada. Nestor kirchner. Sol Naciente. San Jorge. San Onofre, San Marcos. Los Paraísos. Villa Flor, Sol de Misiones. Vecinos Unidos. Ch. 127, V. Cariño.	76	24%
Neighbourhood with urban grids, pavements and drains	San Alberto, Alta Gracias. Altos de Bella Vista. Alto de Irupé, Bancario, Congreso, Gazupí. Los Lapachos, Independencia. Las Dolores. Hermoso, El Libertador, Jardín. Latinoamérica, Mini City. Libertador San Martín. La Picada. Rocamora. San Lucas. Santa Lucía. Sur Argentino, Villa Poujade, 25 de Diciembre, 25 de mayo, A. Guacurari Ch.105., Ch.34. Cha. 183.	117	36%
Urban centre and surrounding area	Centro (cuatro Avenidas y microcentro) Tajamar, Apos. El Palomar. Los Aguacates. Villa Sarita, Villa Urquiza, 23 de Sep., Ch.7., Ch. 46., Patoti, Tiro Federal.	57	18%
Total		**322**	**100%**

Source: Author, based on research database.

The survey of cases was carried out between April and November 2023, and the unit of registration was adult residents in the selected clusters. Initially, the online form was distributed to people via mobile phone in a careful and controlled way, and then the survey was carried out in a more targeted way through home visits in the neighbourhoods. In its dimensions, the survey (voluntary and anonymous) explored aspects related to environmental and pollution problems in the neighbourhoods, environmental care practices, and the impact of government policies, among other opinions collected in the form. The quantitative treatment of the data was carried out through a descriptive statistical analysis processed in SPSS software.

The fieldwork phase included observations and notes, as well as photographic and audio-visual surveys in the different areas of the city. On the other hand, in addition to the surveys, 10 semi-structured interviews were carried out to capture the perceptions of neighbours and neighbourhood leaders with local knowledge of the habitat and environment in their neighbourhood or sector of residence. In other words, it was decided to complement the research with a qualitative/compressive analysis to understand the socio-cultural aspects of pollution problems, practices, and risk representations.

For the spatial analysis, the 67 settlements of Posadas were delimited based on different sources, such as the National Register of Popular Neighbourhoods (Registro Nacional de Barrios Populares, 2018) and the NGO Techo (2016). Information from the Provincial Institute for Housing Development (IPRODHA) was used to determine the location of social housing complexes. Official information from the Municipality of Posadas, available on its website, was used to analyse environmental policy plans and programmes.

Regarding environmental inequalities, we have tried to identify and explore the different neighbourhoods or areas (as spatial units) where urban environmental policies have been implemented or not. Although we propose an exploratory study, open to new emerging processes, we propose two hypotheses: a) environmental policies do not reach all neighbourhoods with the same intensity, i.e. there are actions and omissions in the treatment of pollution and the provision of environmental services; b) people living in neighbourhoods of low socioeconomic status (working-class neighbourhoods and settlements) are disproportionately exposed to adverse environmental conditions with potential health impacts.

The final stage of the research involved analysing and producing comparative information between the different neighbourhoods and urban sectors, as well as the production of graphs, tables, and maps with geo-referenced information.

4 THE CITY OF POSADAS: THE URBAN CONTEXT

With a population of around 390,000, Posadas is the largest urban centre in the province of Misiones, and its urban sprawl extends into the neighbouring municipality of Garupá. In recent decades, the city's morphology has changed due to major river treatment works on the banks of the Paraná River, resulting in marked urban, environmental, and socio-spatial inequalities. On the one hand, a new waterfront with public spaces of high environmental quality and, on the other, the emergence of new settlements and popular neighbourhoods, which in many cases hybridise the occupation of the land with social housing complexes.

The settlements (67 in the city), in addition to poverty and informal land occupation, are characterised by deficient habitats and degraded urban environmental conditions, some more adverse than others, depending on their location in the urban space (Brites, 2022a). Despite the adversities inherent to the settlements, their problems are of different magnitudes, such as distance from the urban centre, segregation, lack of infrastructure and services, unpaved roads, environmental pollution, etc.

Another issue affecting the city's environment is how new social housing estates are built. Large areas of grassland, trees, and natural vegetation are indiscriminately bulldozed to make way for massive housing developments, wasting natural resources and creating environmental inequalities.

In the experience of Posadas, the construction of mega-housing estates such as Itaembé Miní and Itaembé Guazú has increased urban sprawl and degraded natural areas through deforestation, land clearing, and landfills, affecting streams and wetlands without adequate environmental treatment. In the transformation process, housing policies have exchanged ecosystem services for a more precarious and unfavourable environment.

5 RESULTS AND DISCUSSIONS

5.1 ENVIRONMENTAL PROBLEMS

The research analysed a series of recurrent environmental problems in many sectors of the city, such as waste accumulation, waste burning, bad smells, smoke, burning of prunings and grassland, wastewater, industrial pollution, etc. It was found that the highest prevalence of pollution is more intense in the settlements and less in the centre of Posadas and the surrounding areas. As shown in Figure 1, poor environmental conditions disproportionately disadvantage impoverished neighbourhoods (although often located in green areas). In other words, there are certain problematic levels of pollution to which residents are exposed depending on the socioeconomic context of the neighbourhoods. This situation also suggests certain inequalities in terms of urban services.

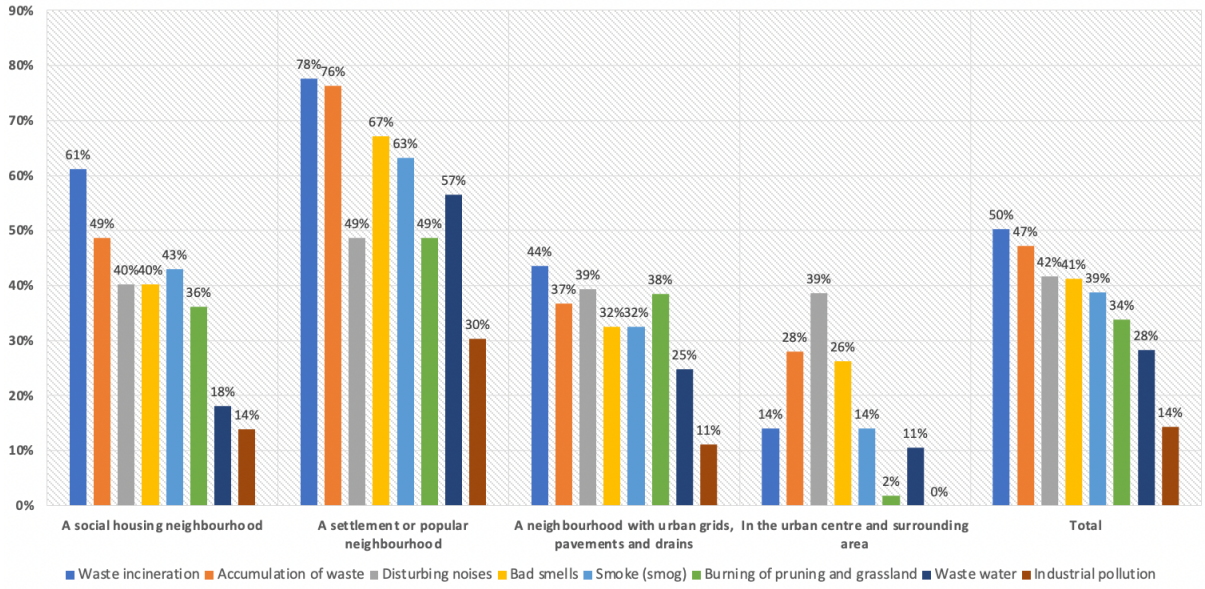

Figure 1 – Main environmental problems by type of neighbourhood

Source: Author, based on research database.

In Posadas, the problem of burning contributes significantly to the city's pollution in terms of prevalence (Brites, 2022b). A phenomenon that, in its different dimensions, such as the burning of garbage or pruning and grassland, increases the presence of smoke and exacerbates the air pollution problem. An analysis of the data by sector or type of neighbourhood (Figure 1) confirms the fact that the settlements are a vivid illustration of the problems of burning: 78% report the presence of waste burning, 49% report the burning of pruning/grass and 63% refer to the problems of smoke (smog) in the neighbourhood.

Apart from burning, pollution in settlements is diverse and often not recognised as a problem by those living in the settlements. There are small open-air rubbish dumps, rubbish dumped in streams, sewage dumped in internal streets and alleyways, construction waste accumulation, rodents in vacant lots, etc. In an interview, one resident mentioned that he often collects pieces of tin, wood, cans, tarpaulins, metals, or other elements that could be useful for the construction of his house.

In the southern outskirts of Posadas, the most remote settlements are plagued by extreme poverty and inadequate housing. The waste management practices in the area are also very lax, which has allowed some families to resort to self-employment strategies, mainly by recovering recyclable materials from waste. This activity is done either for personal consumption or for sale to waste collectors. As a result, the periphery has become a hub for informal settlements, where people eke out a living from the waste they collect. This practice of scavenging is known as “cirujeo” (Schamber; Suárez, 2011).

The prevalence of environmental problems is slightly lower in gridded neighbourhoods than in social housing neighbourhoods, although there are differences in some aspects. For example, social housing estates have fewer problems with wastewater because they have infrastructure such as sewers. In contrast, in other neighbourhoods, such as San Jorge, it was found that houses have sewage outlets that lead to open drains in the Zaimán stream. Environmental issues related to urban vegetation and poor biomass management should also be considered. In the southern neighbourhoods of Posadas, the practice of burning prunings, branches, and grass is more widespread. In the settlements, the situation is critical, as sewage emissions and bad smells are exacerbated by the manipulation of waste through open-air burning, leading to problems of smog and environmental degradation.

On the other hand, on the outskirts of the city, in areas of urban expansion, some factories or industries have been identified in surveys as polluting. These include ‘olerias’ (brick kilns, artisanal brick factories), plastic wrapping industries, car repair shops, material collectors, and companies with inadequate waste management. According to a resident of the Alto de Bella Vista neighbourhood, there is a “chemical smell from the Copaflex industry” in the area, and complaints have been made without any solutions to the problem. Furthermore, a resident of the Itaembé Miní neighbourhood denounces the presence of a brick kiln in a nearby settlement: “The kiln there smokes for days and fills the neighbourhood with the smell of burnt clay” (neighbour interview).

The combination of statistical data and field observations has allowed us to identify more or less delimited areas of environmental degradation and pollution (rubbish dumping, burning, sewage, presence of smoke, etc.). As shown in Figure 2, these areas tend to be located further away from the city centre and its surrounding area.

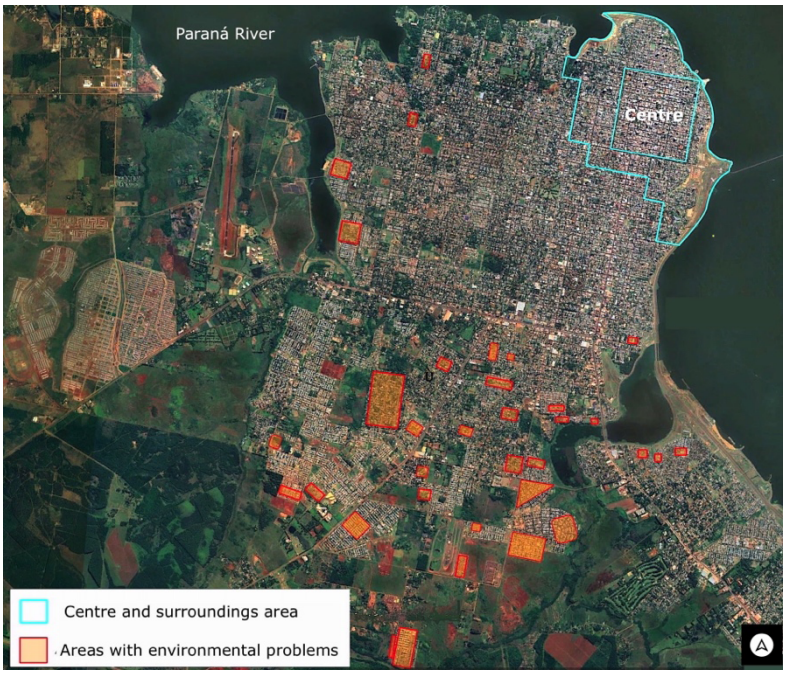

Figure 2 – Delimited areas with environmental deterioration

Source: Author, based on Google Earth.

In general, the greatest pollution problems are found in urban expansion areas. In Posadas, many state-built social housing complexes share urban spaces with self-built popular neighbourhoods and settlements that, despite adversities, are the product of social self-management processes.

5.2 TREES AND GREEN SPACES

Table 2 analyses tree ownership and the presence of green spaces around respondents' homes. In particular, it can be seen that, regardless of the neighbourhood or urban sector in which people live, the availability of trees on pavements is high, with between 72% and 85% of respondents in the different areas stating that they have trees on pavements. However, the question "Has the municipality planted trees in your neighbourhood?" reveals a difference in the answers, in the sense that in the different urban sectors, there is a greater government intervention to the detriment of the popular settlements and their neighbourhoods, where only 13% say that the municipality has planted trees, compared to 38% in the social housing complexes, 34% in other neighbourhoods and 26% in the centre and surrounding areas.

Table 2 – Green spaces and trees by neighbourhood type

	Neighbourhood type				
Arboriculture	*Social Housing NBHD*	*Settlement/ popular NBHD*	*NBHD with urban grids*	*City centre and surroundings*	*Total*
You have trees on your pavement	83%	79%	85%	72%	81%
No trees on your pavement	17%	21%	15%	28%	19%
Planted any trees in the last 2 years	36%	50%	48%	46%	45%

	Neighbourhood type				
Arboriculture	*Social Housing NBHD*	*Settlement/ popular NBHD*	*NBHD with urban grids*	*City centre and surroundings*	*Total*
Not planted a tree in the last 2 years	64%	50%	52%	54%	55%
The municipality has planted trees in the neighbourhood.	38%	13%	34%	26%	29%
The municipality has not planted trees in the neighbourhood.	63%	87%	66%	74%	71%
It has a green space or park	72%	39%	70%	61%	62%
It does not have a green space or park	28%	61%	30%	39%	38%

Source: Author, based on research database.

The distribution of green spaces is also scarce near the poorest neighbourhoods, with 61% of respondents in settlements stating they have no access to them. As can be seen from the map in Figure 3, the largest green spaces are located in different parts of the city, close to the waterfront (shores of the Paraná River). In this regard, it is appropriate to refer to the study by Gómez and Velázquez (2018), which suggests a link between the quality of life and public green spaces (PGS), showing that areas with a high quality of life have more or less defined limits in the city, while in peripheral areas the most "unfavourable" quality of life areas are observed. In central areas, some spaces are more "favourable" for quality of life. On the other hand, although most of the settlements in Posadas are located in the southwest of the city, where urbanisation merges with natural vegetation, green areas should not be confused with environmental quality. In the periphery, lush vegetation coexists with anthropogenic pollution practices such as grass burning, waste disposal, landfills, industrial plants, etc.

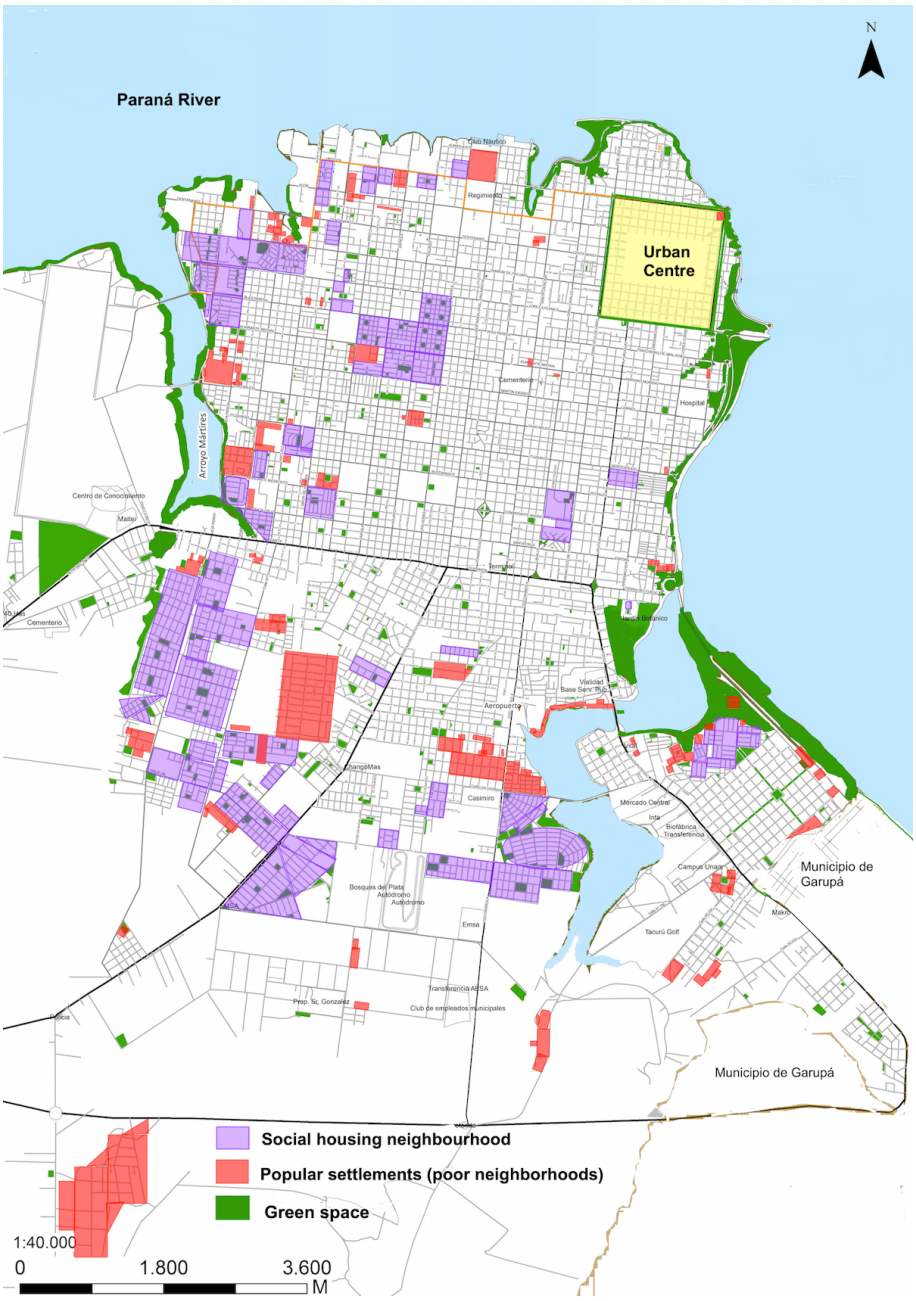

Figure 3 – Posada's city map and location of green spaces

Source: Author, based on RENABAP (2018) and the Municipality of Posadas.

As a more general framework for interpretation, Posadas's proximity to the river and the city's centrality are of crucial interest. Families with greater purchasing power do not always prefer to settle near green areas far from the city centre. Factors such as the presence of settlements, insecurity (both crime-related and traffic-related), proximity to industries (pollution), distance from centrality, etc. are externalities weighted as negative and act as elements that increase socio-spatial distances.

Among the reasons given by those who have not planted trees, some qualitative dimensions emerge, such as: a- lack of space in yards (settlements), b- roots threatening buildings, c- fear during rainy days and storms, d- living in buildings or renting apartments, e- tree leaves litter yards and clog drains, f- other reasons related to cleaning and maintenance.

Specifically, in the words of some neighbours: “The trees are big and need space, their roots will grow and threaten my house”... “They could fall with the rain”... “I don’t like having trees in my garden because they dirty my pool and clog the drains” (neighbour interviews). In short, the negative reasons for growing trees prioritise the representation of something threatening and dirty. This also highlights a problem in people’s relationship with trees.

5.3 BURNING AND AIR POLLUTION

In the most impoverished settlements, such as Lapachitos, Oleritos, N. Kirchner, San Onofre, Los Paraísos, and Aeroclub, burning is a widespread problem, suggesting that air quality is unsafe or inadequate, exposing residents to pollution and making them vulnerable to disease. As shown in Figure 4, data analysis reveals that in settlements and poor neighbourhoods, 54% of respondents reported repeated burning at home, while there were no registered cases in the city centre and surrounding areas. The situation is also noteworthy in social housing complexes, where 33% of respondents reported practising burning.

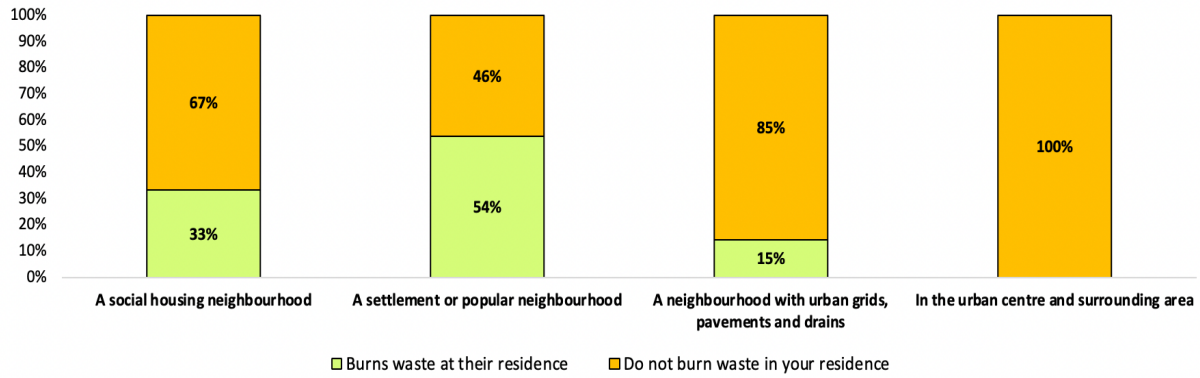

Figure 4 – Waste burning at home by type of neighbourhood or sector

Source: Author, based on research database.

Another strategic and differentiated way of asking about burning was to ask: do you know any neighbours who burn waste? Here, the change of focus shows cases from a different perspective, cases that even appear around the urban centre, where urban legislation is more restrictive. As can be seen in Figure 5, 91% of the people surveyed in settlements know neighbours who usually carry out burning.

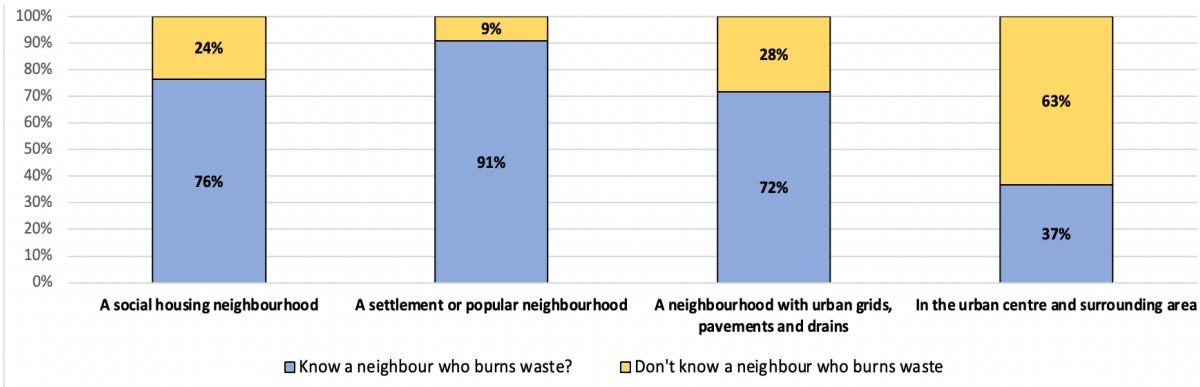

Figure 5 – Knowledge of a neighbour burning by type of neighbourhood or sector

Source: Author, based on research database.

These data corroborate the findings of another study (Brites, 2022b) on the southern periphery of Posadas, where residents carry out burning on pavements, vacant lots, yards, and rarely used streets, a

problem that is not informed, controlled, or regulated. In Posadas, it is known that burning is a problem in settlements where, due to the lack of roads, waste collection vehicles sometimes do not enter, or the service is intermittent. On the other hand, in both social housing estates and other neighbourhoods with optimal urban services, between 76% and 72% of people surveyed claim to know neighbours who burn (Figure 5). This important finding reveals hidden burning practices in private spaces such as backyards.

As in other Argentinean cities, in the urban centre of Posadas and the surrounding areas, there is a more intensive and organised occupation of the land and greater control of urban environmental legislation, with inspections, daily cleaning, and maintenance of green spaces. On the other hand, the constrained location of popular neighbourhoods and settlements, pushed to the edge of the city, often coincides with their proximity to waste dumps, rubbish tips, and improvised landfills, both sanctioned and unsanctioned (authorised and unauthorised), leading to air, soil and water pollution. As D'hers (2013) points out, in the city's suburbs, the existence of informal and illegal networks related to waste makes pollution possible.

From a qualitative approach, through interviews, it has been shown that in some neighbourhoods, there is a certain 'naturalisation' of burning practices, which are seen as a conventional and non-risky way of disposing of waste. In other words, there is evidence to interpret the phenomenon as a cultural practice that is common, shared, and, to some extent, normalised in many neighbourhoods. As a resident of San Lucas explained: "We burn a little every now and then, it's not a big fire... the neighbours tend to burn too"... "It's not a nuisance because it burns at night in the open space there" (interview).

Other field observations enrich the interpretation model of pollution in settlements. The use of firewood as a cheap cooking fuel is common (though not universal). In addition, high land occupation (densification) and construction of masonry and metal sheeting create heat islands with elevated temperatures, contributing to anthropogenic emissions. This becomes a more critical issue in the summer due to the piped water scarcity, leading to greater socio-environmental vulnerability.

Among other issues, it is affirmed that in the south of Posadas, emissions problems are more chronic among the poor population, and besides other sources of pollution outside the neighbourhoods (such as few industries or vehicular traffic), burning is a recurrent practice. Waste disposal by fire generates harmful smoke, which causes severe air pollution and is dispersed by the wind (Bernache Pérez, 2012; NCAIR, 2012). The new paradigm of environmental epidemiology associates this type of pollution with allergies, respiratory diseases, cardiovascular diseases, and even cancer (WHO, 2018). Therefore, it is emphasised here that air pollution in some areas is part of urban inequalities, expressing socio-environmental divergence, with potential costs for quality of life and health.

As will be seen in the next section, the absence or inadequacy of public services, the lack of awareness programmes on the risks and dangers of pollution, etc., facilitate the various practices of burning, rubbish, and biomass waste (leaves and pruning waste).

5.4 THE ENVIRONMENTAL ACTIONS OF THE MUNICIPALITY

In general, the environmental policies of the Municipality of Posadas are far removed from the most recurrent and less visible environmental problems, such as those related to air pollution or the sanitation of urban streams and tributaries. As can be seen in Figure 6, the control of vehicle emissions and waste incineration is practically non-existent; instead, there is concern about dengue fever through cleaning and fumigation operations (62% and 51%, respectively), to the detriment of other equally serious environmental problems. This concern is evidenced by the increase in dengue cases in recent years.

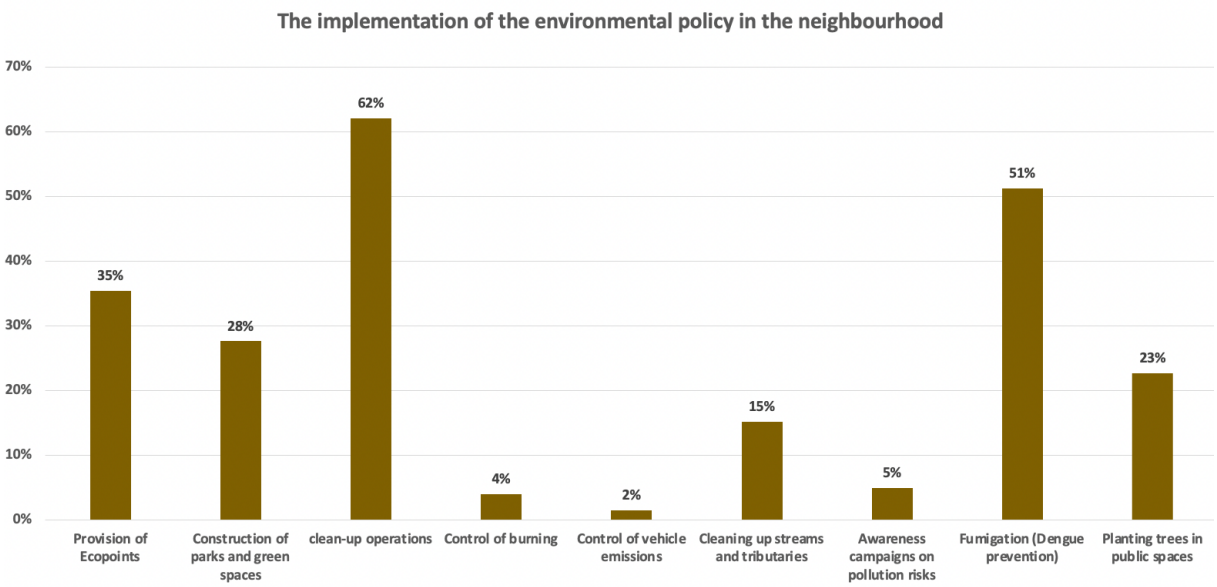

Figure 6 – Implementation of the Environmental Policy of the Municipality of Posadas

Source: Author, based on research database.

On the other hand, when it comes to raising awareness, it is striking that only 5% of respondents (16 cases in non-poor neighbourhoods) said that campaigns to raise awareness of pollution risks reach the neighbourhood. In this aspect, the political agenda, for example, that is related to air pollution issues, is relegated and pending.

In Figure 7 below, we analyse the presence of the municipality concerning the different clusters studied: social housing areas, settlements, neighbourhoods with a grid layout, and the city centre and its surroundings. For instance, we can see that 68% of respondents in settlements and popular neighbourhoods said that the government does not control living conditions or pollution problems in neighbourhoods.

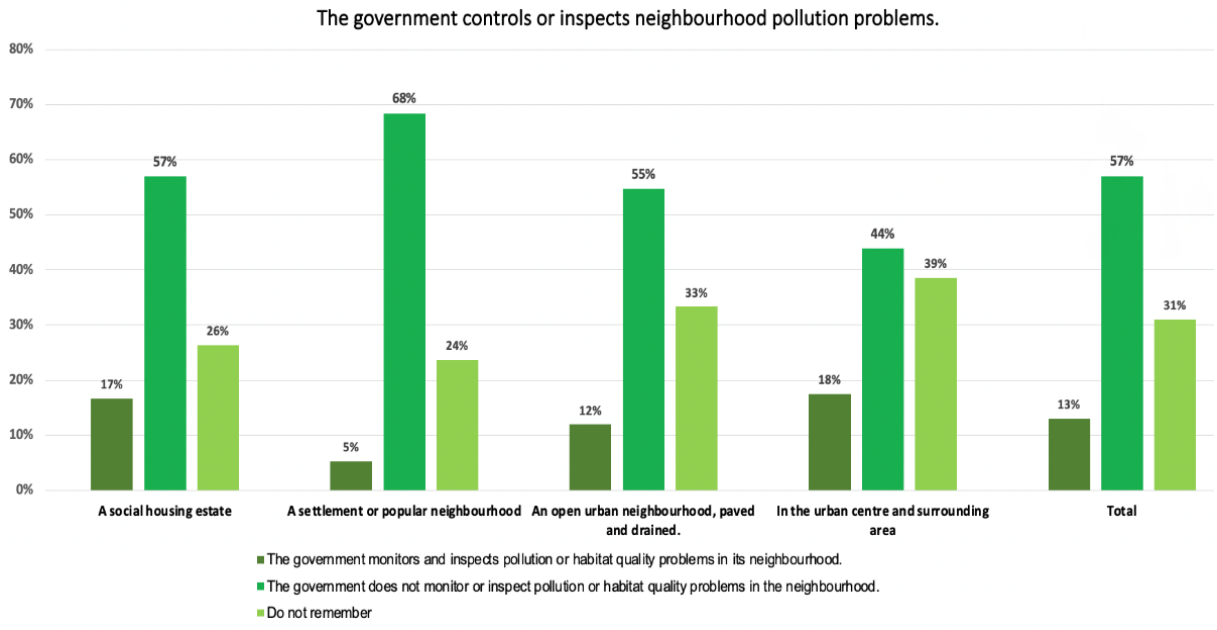

Figure 7 – Government control of pollution problems by type of neighbourhood

Source: Author, based on research database.

The absence of the government is high, considering that a further 24% of respondents could not remember or had no record of campaigns (other than dengue). According to one interviewed person in a poor neighbourhood: "The government comes after a big storm because of the water getting into the houses or to bring goods to the soup kitchen, but they don't come for anything else"... "Anyway, people don't care about the environment here, it's more important to have work and food" (interview with a neighbour).

The research also reveals that pollution monitoring or inspection is poorly developed in other neighbourhoods of Posadas and even in the city centre and surrounding areas, but should be a priority in settlements and poor neighbourhoods where there are multiple situations of socio-environmental vulnerability and pollution. Understanding the impact of pollution on people's health and lives is essential and a pending issue in the city's environmental policies. As London (2018) points out, in many poor neighbourhoods, indoor pollution is not addressed and is rarely part of the political agenda, where urgency prevails over importance; mitigation takes precedence over prevention, habitat management and environmental concerns.

Figure 7 shows that pollution is unevenly distributed in the urban space of Posadas, with little control in the working-class neighbourhoods and settlements (5%). At the same time, there is more attention and control of the environment in the city centre and adjacent areas. In working-class neighbourhoods and suburbs, the city's environmental protection and care regulations are flexible or non-existent, as they do nothing, do not warn, and do not prevent. We believe that inaction in the context of pollution leads to the reproduction of habitats that are adverse to the quality of life and inequalities in environmental health.

The analysis of different environmental plans and programmes made it possible to analyse the traceability of environmental policies between two polarised urban areas, as shown in Figure 8.

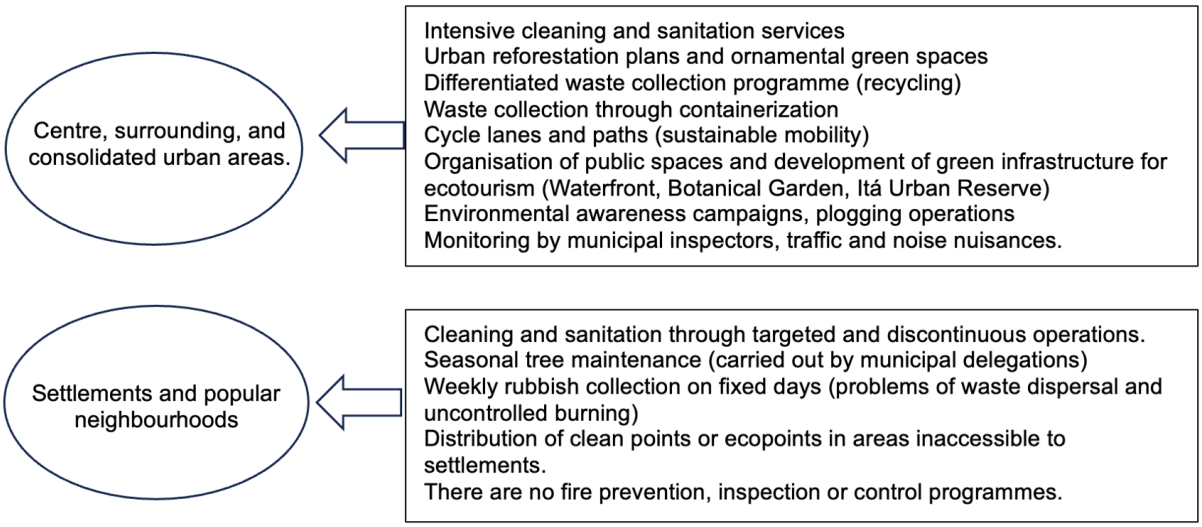

Figure 8 – Traceability of environmental policies in polarised urban areas

Source: Author, based on Environmental Policy of the Municipality of Posadas.

In Posadas, along the waterfront, there are intervention areas such as the Botanical Garden, the Arroyo Itá Urban Reserve in El Brete Bay, La Cascada Park, and other areas where there are projects to consolidate parks, squares, and gardens to improve the climatic quality of the environment. Beyond the intervened sectors, in the coastal area, the breezes from the mighty Paraná River contribute to better air quality, now combined with green recreational areas, strengthened by urban reforestation efforts. Ultimately, these actions enhance certain areas and neighbourhoods of the city.

In this sense, it can be said that the construction of green infrastructure (new squares and parks) in selected urban spaces, such as those linked to the city's waterfront, exhibits environmental policies where there are no major environmental problems. Green propaganda, with signs highlighting environmentally friendly actions, is displayed in clean urban spaces visible to tourists or passers-by, leading to a certain distortion of government actions regarding environmental care.

6 CONCLUSIONS

The city of Posadas promotes sustainability, but ecological and environmental policies do not equitably reach all sectors. The urban environmental agenda, the resources, and the quality of the policies are not only different but also unequal, installing a selective logic in the attention given to the different neighbourhoods.

Neighbourhoods in revitalised areas, such as the waterfront, downtown and surrounding areas, have better sanitation and cleaning services, new green infrastructure, landscaped areas, bike paths, and urban reforestation. Conversely, in the poorest neighbourhoods, environmental sanitation or habitat improvements are scarce, as are policies that require fewer resources, such as those for environmental awareness and care, deepening inequalities in access to environmental knowledge for quality of life.

In the poorest neighbourhoods, the cultural, social and economic appropriation of the environment is conditioned by poverty. There, survival practices and the need for sustenance seem to outweigh the effects of pollution. This is a context where misinformation and lack of awareness of the consequences of pollution converge in the definition of risks and hazards. Neglecting the environment challenges a decent living space and a healthy environment.

Finally, one of the study's contributions is that sustainability actions should be targeted at poor neighbourhoods and settlements, where pollution hotspots multiply and environmental degradation increases, and where environmental protection and maintenance actions should be prioritised.

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