42 Urbano

MISCELÁNEA
MISCELLANEOUS

NOVIEMBRE 2020 / NÚMERO 42
ISSN IMPRESA: 0717 - 3997
ISSN ELECTRÓNICA: 0718 - 3607

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ISSN IMPRESA: 0717 - 3997
ISSN ELECTRÓNICA: 0718 - 3607

REVISTA DEL DEPARTAMENTO DE PLANIFICACIÓN Y DISEÑO URBANO /
UNIVERSIDAD DEL BÍO - BÍO / CONCEPCIÓN / CHILE

UNIVERSIDAD DEL BIO BIO

FACULTAD de ARQUITECTURA CONSTRUCCIÓN y DISEÑO
UNIVERSIDAD DEL BIOBÍO

DEPARTAMENTO DE PLANIFICACIÓN Y DISEÑO URBANO

CONICYT Ministerio de Educación
Gobierno de Chile

Programa de Información Científica
Concurso Fondos de Publicación de Revistas Científicas 2018
Proyecto Código: FP180007

INDEXACIONES/indexation
Scopus, Scielo, Emerging Sources Citation Index, Redalyc, ERIHPLUS, DOAJ, EBSCO, AVERY Index, Latindex Catálogo 2.0, Dialnet, REDIB, REBIUN. URBANO forma parte de ARLA, Asociación de Revistas Latinoamericanas de Arquitectura.

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EDITORIAL

Editorial

ANA ZAZO MORATALLA 1

Neoliberalism, Covid-19 and its impact on academia from a gender perspective 2

COVID-19 has widened preexisting gaps in many areas that, even though already known, have been revealed as key in daily life over the last few months. At a structural scale, neoliberalism, rooted in the system through a market logic that imprints every sphere of society, promotes a competitive development of the productive tasks that neglects the reproductive activities that sustain it. The pandemic and the confinement have shaken this system when domestic chores and care tasks have had to be incorporated into the daily productive work and, in many cases, have had to share the same physical space, leading to a blurring of the boundaries of two areas that had been differentiated. State universities meanwhile have not escaped this market logic which has permeated its methods of economic support and administering its human capital. Currently, Chilean public universities are subject to some basic means of financing based on quantitative indicators of academic productivity and enrolled students, instead of being focused on strategic regional and national goals. The pandemic has jeopardized a system supported by productivity which had to focus on implementing a transition towards a remote teaching modality, one that saw an increase in class numbers and the number of courses per teacher, as a response to the economic impact brought by Covid-19.

Complementarily, when the focus is put on women and on how they have had to face this situation, already adverse in normal times, we find that, in the reproductive dimension and on a structural scale, women tend to be in charge of most of the care and domestic tasks. The confinement during a pandemic, has burdened them again, in a greater degree, with these being unpaid tasks, making the so-called "conciliation" (CEPAL, 2020) complex and a first gender asymmetry has been made apparent as a consequence of Covid-19, one linked to the reproductive dimension of care and domestic chores. At a university scale, this reproductive gap affects all groups of working women for whom, also, another series of asymmetries associated to the productive dimension, which comes from their gender condition, are superimposed, which vary according to the functions that perform in the university and the contractual relationship each one of them has with the institution.

When the focus is turned even further towards female teachers and/or professors, it is possible to see three relevant gaps: female representation is remarkably lower than that of men; it is complicated to find women at the highest levels or in leadership positions; and female professors receive an average remuneration that is lower than their male peers at the same level. Also, women perform leadership positions with a "reproductive" nature in academia, turning away from more point-scoring tasks in the structure and slowing down, in this way, their professional promotion. In this sense, universities have been accomplices of a patriarchal system that has built inequalities and glass ceilings that are difficult to break. During the pandemic, the reproductive asymmetry falls onto this group, due to their gender condition, which harshly affects conciliation with the demanding productive tasks, in particular to those who find themselves alone

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2 This editorial combines some findings of the innovation project "DesafiO UBB: COVID-19" called "Mujer y trabajo a distancia en tiempos de COVID-19: análisis y monitoreo en Universidad del Bío-Bío, sede Concepción" (R&D 20-49), developed together with Soledad Reyes Pérez, Carmen Burdiles Cisterna and Jessica Jerez Yáñez, and some analysis made by Urbano's Editorial Team.

DOI: https://doi.org/10.22320/07183607.2020.23.42.00

Figure 1, 2 Alexis Pérez Fargallo,Concepción, 2020.

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in the care of their children or elderly family members. The flip towards care and domestic chores and the transition towards a more demanding teaching has meant that possibilities of presenting projects, developing works or presenting scientific articles has been drastically reduced. Thus, the reproductive asymmetry originates a productive asymmetry compared to peers with no people to look after, who have been able to carry on moving forwards in their professional careers and fulfilling the commitments taken on before the pandemic. In this context, it is not strange that several voices have red flagged the situation of academic women in this health emergency and have denounced the professional deceleration they are suffering because they are researching and publishing less than under normal circumstances. Female authorship in scientific journals during this year and next, therefore, is predicted to fall, which will deepen an already existing distance in the presence of women in the specialized and scientific media, a distance that it does not seem will be reversed in the short-term.

The Chilean specialized media in the areas of urbanism, urban studies and geography is not exempt from this dynamic, where women still have less participation and leadership. A global analysis of the last five issues published (2018, 2019 and 2020) in the four Chilean urbanism journals indexed in Scopus (Revista AUS, Revista Geográfica Norte Grande, Revista de Urbanismo and Urbano) indicates not only that the presence of male authors is greater than female authors (12.7 compared to 10 per issue), but that also they lead group authorship of articles (5.7 compared to 4.6 per issue). This general data, however, are not free from exceptions per issue and per journal.

Urbano, since the entry of new female Editorial Team in January 2017, has tried to incorporate, where possible, gender equality in all of its processes. In 2017, the parity of the International Committee was reached and, since then, it has been sought to also balance the panel of expert evaluators, with less success in this case. On the other hand, analysis of the last five issues of Urbano (2018, 2019 and 2020) shows that women have a greater presence not only as authors (9.4 compared to 8.4 per issue), but also as leaders in group authorship (4.4 compared to 3 per issue). The current issue 42, whose call was amidst the pandemic, breaks the balance on seeing an increase of male presence (17 compared to 11); however, women keep a greater index of lead authorship (6 compared to 4). From this perspective, Urbano positions itself as an urbanism journal that champions parity in its internal administration and where women appear with an important role of leadership in the area of urbanism, even during this complex time.

Finally, and to conclude, when facing the gaps and asymmetries derived from neoliberalism, the pandemic and gender inequality, female academics and women in general, must take advantage of the opportunity of structural change that, we hope, will take place during the coming months on different scales, to promote a transition into a more equalitarian system, that becomes co-responsible for reproductive life and that makes the same opportunities for all possible, regardless of gender, ethnicity or social group. In this sense, it is worth pointing out some final reflections or challenges:

- The new Chilean constitution and new university bylaws, as national and university carta magna, must guarantee the basic principles so that these changes can take place in all the spheres of the economic and university system.
- Complementarily, the policies of higher education, of financing universities and of research should redirect their goals and focus on quality and not on quantitative indicators, in the areas of education and research.
- From the scientific media, we must promote and guarantee the presence of women and their involvement of several editorial areas, both visible, like scientific and writing committees, and invisible, editorial teams and evaluation panels; as well as quantitatively and qualitatively monitor their presence in authorships in order to measure whether the barriers in academia to reach this final stage of research are maintained, increase or are overcome.

Now, despite the fact that all these changes are necessary, they are not enough to generate a real change in gender equality either at a structural or, specifically, at an academic level. These changes must take place alongside a profound transformation of society that takes these principles as their own, and allows and promotes a natural transition in the coming years.

Recibido: 13-07-2020
Aceptado: 11-11-2020

CIUDAD Y SEGREGACIÓN VAPULEADAS POR EL CAPITALISMO
CRÍTICA DE LOS ENFOQUES IDEALISTAS
FRANCISCO RAFAEL SABATINI DOWNEY, ALEJANDRA RASSE, MARÍA PAZ TREBILCOCK, RICARDO GREENE
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ISSN 0717 - 3997 / 0718 - 3607

CITY AND SEGREGATION SHAKEN BY CAPITALISM

CRITIQUE OF THE IDEALIST APPROACHES[1]

CIUDAD Y SEGREGACIÓN VAPULEADAS POR EL CAPITALISMO
CRÍTICA DE LOS ENFOQUES IDEALISTAS

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DOI: https://doi.org/10.22320/07183607.2020.23.42.01

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Siempre ha sido difícil definir qué es una ciudad y ahora lo es más porque el auge de los negocios inmobiliarios la ha tenido sometida a una transformación incesante, incluyendo sus áreas periurbanas. Con ello, también la segregación ha adquirido un estado de mutación constante y, de hecho, ya no parece estabilizarse, como en el pasado, en patrones espaciales reconocibles. Esto ha estado sucediendo en las ciudades chilenas, como en las de muchos otros países. Resulta comprensible, así, la tentación de sustituir las definiciones físico-geográficas y planimétricas, tanto de ciudad como de la segregación, por otras que enfatizan los procesos. ¿Quiere decir, entonces, que la dimensión físico-espacial de la ciudad carece de importancia como, implícita o explícitamente, argumentan los economistas neoliberales y los urbanistas apegados a enfoques estructural-deterministas? Es cierto que la pandemia del COVID19 hace evidentes las flaquezas de estos enfoques que desconsideran lo espacial, pero eso no resta relevancia al examen de su armado teórico, el que se abordará aquí con base en una revisión crítica de la literatura especializada y en testimonios de especialistas recogidos por un estudio sobre segregación en tres ciudades chilenas, del cual este artículo es resultado. Concluiremos estas páginas planteando la necesidad de reforzar la investigación empírica de la ciudad y la segregación, lo mismo que nuestra atención a sus dimensiones subjetivas.

Palabras clave: neoliberalismo, estructuralismo, idealismo, urbanismo

It has always been difficult to define what a city is and now even more so as the boom in real-estate business has subjected it and its peri-urban areas to constant transformation. With this, segregation has also acquired a state of constant mutation and in fact, no longer seems to stabilize itself, as it did in the past, into recognizable spatial patterns. This has been happening in Chilean cities, just as it has in many other countries.Thus, the temptation of substituting physical-geographical and planimetric definitions, both of city and segregation, for others that emphasize processes, is understandable. Does this mean to say then, that the physical-spatial dimension of the city implicitly or explicitly lacks importance as neoliberal economists and urbanist devotees of structural-determinist approaches argue? It is true that the COVID-19 pandemic makes the feebleness of these approaches, which ignore the spatial aspect, patently clear, but this does not make it any less relevant to examine their theoretical setup, which we will do based on a critical review of the specialized literature and testimonies of specialists collected in a research project on segregation in three Chilean cities that we recently finished. We conclude these pages in the need to reinforce empirical research of the city and segregation, just as our attention to their subjective dimensions.

Keywords: neoliberalism, structuralism, idealism, urbanism

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I. IT HAS ALWAYS BEEN HARD TO DEFINE WHAT A CITY IS AND TODAY EVEN MORE SO

The qualities of the city seem undeniable. Louis Wirth, in his famous article of 1934, mentioned that it has "been a melting pot of races, peoples and cultures, and the most favorable breeding ground of new biological and cultural hybrids… it has brought together people from the ends of the earth because they are different (Wirth, 2005, p.6, own translation)

However, despite the richness it has contributed, or maybe because of it, it has always been difficult to outline exactly what a city is. Wirth himself tried out a composed definition: entity that is big, dense and diverse enough (2005), conjecturing on the relations among these dimensions. He suggested, in the most substantial, that the increase in size and density would produce contacts that, despite being face to face, were "impersonal, superficial, transitory and segmental" (Wirth 2005, p.7).

The contribution of Wirth's article has mainly been in these hypotheses or conjectures on "urban way of life", more than in his definition of city, which was somewhat fruitless. The three qualities are difficult to explain. When is an entity big, dense and heterogenous enough to deserve being named a city?

As a definition, Wirth's was added and, without a doubt, contributed to a kind of advocacy for the meeting in diversity that runs through the history of urbanism since Aristotle himself in *Politics*. In comparison, the qualities of size and density have been less convincing, as they have been given negative effects that heterogeneity has not. Perhaps the most common position in the academic and professional tradition of urbanism has been the casting of different evils on the "excessive" size of cities; and something similar has been done with density. Wirth's hypotheses were added, undoubtedly, to that intellectual tradition we could catalog as anti-urban, which Capel describes (2001), and that includes, among many others, the architects Le Corbusier and Frank Lloyd Wright, as Fishman (1982) shows.

In the end, with regard to the definition of city, we have been stuck for so long at the same starting point: with a statement, somewhat philosophical and poetical, or what a city is. This situation was fine while we could use "evident" physical-material definitions based on the country-city dichotomy and in the existence of an easy to recognize physical silhouette or border, that separated the city from the countryside.

When the cities of the capitalist industrialization "exploded", especially the largest ones, encroaching the surrounding countryside, a significant geographical morphological or physical change was produced. Cities stopping being a dense and continuous space, like they had been for thousands of years (Geddes, 1997). In the conclusions of a comparative study of eleven "global urban regions" on different continents, Hack (2000) stated that the prevailing morphology was the drop in density, the "poli-nucleated" proliferation of settlements that produce a disperse development with a decreasing level of "compactness" of the respective urban region, and the spread of commercial and work hubs in the areas around these cities (p. 184-187), which we now call peri-urban. The loss of the urban silhouette and the growth and expansion of the city, especially towards its international airport, were also courses seen by that research (Simmonds & Hack, 2000).

After that study, cities have accelerated their transformation, including the appearance of new hubs everywhere and, at the same time, the pattern of segregation has shown permanent instability and change. It is more difficult today than before to empirically define what a city is, be it in general terms or in terms of concrete cities. Likewise, it is more difficult to identify their residential or socio-spatial segregation pattern.

Countryside dwellings in villages or in rural hamlets affected by the negative forms of spatial segregation, namely, by the social homogeneity of the space, could become "inclusionary housing" or "social integration" dwellings just by the construction of middle-class gated communities, services and stores, including shopping centers, next to them. The general meaning of peri-urban and their current "parts", even if these are not modified, is changing with the growth of the real-estate sector and capitalist urban development.

Among the most popular notions presented to capture the morphology of new cities after the neoliberal economic reform of the 1980s, is the *cittá difusa* of Francesco Indovina (1990), the "metropolis unbound" of Robert Geddes (1997) and the ideas that arose around the so-called "Los Angeles School". Despite the variety of approaches, the prevailing idea that cities of globalization do not have a downtown anymore and that "urban peripheries dominate what is left of downtown" stand out, among the notions that emerge from that School, along with the idea that all cities will tend to follow this global urban pattern (Dear, 2018 p. xxi).

But the recognition of spatial patterns was soon overcome by new and more radical physical mutations; among them, the one we could call "back to the city" and the ensuing revitalization of traditional downtowns: the "great inversion" according to Ehrenhalt (2012).

The transformation of cities then, has become more intense after these morphological proposals, especially after the worldwide crisis of 2008 and after land rent has become so important within the "crises of realization" of capitalism.

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In fact, Chilean cities show a noticeable boom on their fringes and are now in undeniable rupture in their traditional segregation pattern, including its reduction in many districts of each city. A great dynamism and variety of land uses have taken over peri-urban areas, just as they do inside the city.

To account for this reality, it would be a good idea to rescue the concept of macro-zone used decades ago by architects and urbanists in Chile, said José, geographer, academic and a long-standing researcher in regional studies, who we interviewed.**6** The method to identify a city, he says, has to cover both its morphological and functional dimension. However, on commenting the proposal there is in Brazil to treat the Sao Paulo coast as an enormous functional region that includes Rio de Janiero, he mentions:

> "There we face another problem, the problem of scale. A macro phenomenon at that scale, thinking that the city is inserted in that region… you reach the functional again."

Summarizing, the morphological representations of the city and of segregation are less useful than before as knowledge resources. They are not enough to describe the cities that we experience. To overcome them, without discarding the spatial form altogether, seems to be a key challenge for urban research, or the challenge of how to throw out the bath water without the baby.

II. URBAN TRANSFORMATION FAVORS APPROACHES THAT DISREGARD THE CITY

What is being foreseen for the future is a persistent transformation of cities and, therefore, the morphological or physical-geographical definitions of city and of segregation seem to lose theoretical relevance and practical usefulness, even for short periods. This loss of value is picked up by those who today have maybe the most influential approaches in the field of urbanism: the neoliberal, coming from the neoclassical school of economics, and the structural-determinist schemas, that arise in part from Marxism.

From the antipodes of the ideological spectrum, both approaches propose us to set aside geography and the urban form. We will discuss them and conclude in the need of recovering the importance of "the spatial" and of incorporating the experience and subjectivities in the definition of what the city and the social segregation of the space are.

The neoliberal city

The discussion on whether the city has an "optimal size", typical among neoclassical economists (for example, Heilbrun, 1987 and Cardoso, 2018) copies an atomist, utilitarian notion of the city where space (crowding, distance, congestion) appears as a secondary dimension associated to advantages and disadvantages, to economies and diseconomies of crowding, to positive and negative externalities. The fact that these effects are called "externalities", tells on the individualist ontology and epistemology of these economists. In the end, they renounce the optimal size calculation as a result of measuring technique issues, and because the city changes too much, they argue (Richardson, 1973; Heilbrun, 1987). It is not possible to reach the "balance situation", which as Thomas Schelling critically warns (1978, p.27), economists unjustifiably value per se.

Neoclassical economists do not see or cannot take charge of public goods or problems associated with their management, which is not a minor issue, considering, as Crane & Manville (2008) argue, that these public goods can be seen as the essence of a city from an economic point of view. They consider them as impossible to quantify, often sustaining that what is best is doing nothing to manage them. They also end up applying economic theory forcibly to land markets, on reducing the economic particularity of the urban (the public goods) to the idea of "externalities" or of "spatial distortions" (Glaeser, 1993).

From this point of view, the city is built as a sum of individuals that interact in the markets. Public policy should aim to be "space neutral" (Glaeser, 1993, p.vii). In fact, the "spatial distortions" caused by policies lacking said neutrality, together with the externalities, would be the causes behind why urban markets do not work well and why social and private costs do not coincide (Glaeser, 1993, p.2).

Beyond the markedly liberal approach these arguments copy, lies a devaluation of the spatial. The imperfections of land markets do not receive greater attention, except for the "externalities", and on facing these, inaction tends to be recommended, as we said before. Neoliberals understand the city as the sum of its parts, which is how they also understand, in essence, the economy and the society: as a sum of firms or companies and as a sum of rational and selfish individuals. Sahlins (2011), in his work "The Western Illusion of Human Nature", criticizes this "western contempt for humanity" which turns greed into a virtue (p.21).

6 In order to protect the anonymity of our interviewees, we have changed their names.

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The tendency to apply conceptual and heuristic tools of neoclassical economics to such imperfect and peculiar markets as that of land is justified, all things considered, in that what is truly important would be the individuals and the rational firms in their competitive dynamic, and not the places. Glaeser (2011) argues that the reasons that lead a city to be successful have much more to do with their human capital than their infrastructure.

The empire of *homus economicus* and of the invisible hand of the market, the latter being the most notable result of the interaction between these rational beings,**7**lead to disregarding the "systemic" realities that make up the city, realities that we could sum up in two key concepts: the "tragedy of the commons" (Hardin, 1968) and the "neighborhood effect" (Sampson, 2012).

The "tragedy of the commons", notion proposed by the zoologist and biologist Garrett Hardin (1968), lies in that a sum of individuals acting rationally produce or can produce a collective irrationality, which he calls tragedy. The "tragedy of the commons", studied by Hardin, was poorly resolved by neoliberal economists. From the example Hardin makes about an over-grazed common pasture, damaged by private cattle grazers, these economists highlighted the fact that this was about a common or public property and came to the extraordinary conclusion that Hardin's article demonstrated that the "tragedy of the commons" would be resolved by defining clear rights of private property (as in Goodman & Stroup, 1991).**8** On the contrary, Hardin thought that more State presence is needed, speaking even of a Leviathan that could place collective rationality there where it is decimated by the game of individual interests (1968). As a common good, the city can be compared to Hardin's pastures.

In general, neoliberal economists accept there are externalities, but they tend to highlight that little can be done to "internalize the externalities". They argue two things: that it is too hard and almost impossible to quantify them; and that the cure (the policy or norm) often ends up being worse than the disease. Inaction or resignation when facing these externalities tends to be the attitude of authorities guided by economists from this line. The fact that this way out, not acting, does not greatly affect them, speaks of how secondary the systemic dimension of the city and the environment is for them.

On the other hand, the "neighborhood effect", an undeniable truth among epidemiologists and an empirical and theoretical reality that is well-supported by social research (Sampson, 2012), tends to be opposed by economists and other social scientists. The claim of "selection bias", they raise against the "neighborhood effect", in general, and against the negative effects of segregation, in particular, copy, ultimately, a devaluation, even an abandonment, of the geographical and spatial dimension of the city. Glaeser (2011) expresses this in a Manichean dichotomy: Cities do not make people poorer, but rather they attract the needy (p. 5). The argument is that spatial segregation is a consequence of unemployment and not one of its causes.

On the other hand, urban sociologists influenced by the tradition of urban epidemiologists, as is the case of the sociologist Robert Sampson (2012), argue that spatial segregation can aggravate poverty and favor social disintegration.

All things considered, the worshippers of *homo economicus* have a kind of "methodological individualism" (using Diez-Roux's expression, 1998), which leads them to replace the systemic realities that constitute cities for ideal realities that are coherently summarized in an abstract idea of the "economic system". The historian Fernand Braudel (1986), on introducing his work of a historic review of economic life, laconically says: "the economy, in itself, clearly does not exist (1986, p.5, own translation)

In the extreme, neoliberalism offers us the utopia of a kind of "personal city" that we can build around ourselves, which today has unbeatable conditions with digital communication and is regaining strength with the Covid-19 pandemic. It is a way to neutralize geography, placate friction of the space, and hand-in-hand avoid social face-to-face contact.

Herbert George Wells, in a futurist story published as early as 1900 and analyzed in Fishman (1987), imagined an era where modern communication technologies would make it possible for everyone to build their own city. One person on a hill, we could surmise, turning to these fantastic communication technologies, could organize a personal city based on their contact with other people, without needing the copresence and even less a crowd of human beings which has characterized cities over history.

The famous *Broadacre City* of Frank Lloyd Wright is another urban utopia, or more accurately, anti-urban utopia, which

7 The idealized character of the "invisible hand" deserves to be highlighted. Adam Smith used the expression, "invisible hand", just once in an economic sense, and solely as a metaphor without real importance in his theory of competition, or so argues Kennedy (2007); and Stiglize, the Economic Noble Prize Winner from 2001, says that "the reason that the invisible hand often seems invisible is that it is often not there" (Stiglitz, 2017, own translation).

8 The work of Goodman & Sprout was translated and published in Chile by Instituto Libertad y Desarrollo with the title of "Ecología de vanguardia: una agenda para el futuro".

follows a similar inspiration to Wells (Wright, 1932). Fishman (1987) analyzes both "foresights" (p. 186-189) and summarizes them in the idea of a *technoburb* that, in fact, would be starting when he published his book, thanks to new technologies: "Compared even to the traditional suburb, it at first appears impossible to comprehend. It has no clear boundaries; it includes discordant rural, urban and suburban elements" (p. 203).

However, despite the enthusiasm that takes over Fishman, what these utopian visions do not resolve is the key issue of face-to-face relations. As Fishman himself points out: "By detaching itself physically, socially and economically from the city, the *technoburb* is profoundly antiurban, as suburbia never had been" (p. 199).

Wright, meanwhile, leaves the issue up in the air, when he signs off on his futurist vision of Broadacre City, as Fishman (1987) summarizes: "The old cities would not completely disappear, but would lose both their financial and their industrial functions, surviving simply because of an inherent human love for crowds" (p.187).

Neoliberals, at a level of public policy and coherent with their poor conceptualization of the city, reject the "support to places" trait of traditional urban planning and offer to replace it with the "support to people". Public policy has to help the poor, not the poor cities, says Glaeser (2011). Beyond the validity of the arguments they wield against the support to places (mainly, the de-focalization of social investment), neoliberals do not understand, and even less value, public goods that largely structure the city.

In the context of Covid-19, it is presumable that Broadacre city recovers popularity among the wealthy urban classes.

The city of the structuralists

From certain leftist currents, we are offered a spatially abstract approach of the city, thus establishing a point in common with the approach of neoliberals. The cities, physically, would not have more importance when compared to the capitalist urbanization processes that overcome them and fill the planet. The city backs away when facing "urban society", that tends towards the global.

This is an original hypothesis of Henri Lefebvre (1970):" … urban society cannot be constructed on the ruins of the classical city alone. In the West, this city has already begun to fragment. This fragmentation (explosion – implosion) may appear to be a precursor of urban society" (Lefebvre, 1970, p.66, own tranlation)

Castells (1974, 1988) turns this hypothesis into the starting point of his critique on urban sociology and, in particular, on the Chicago School and its members. He accuses them of assigning the social problems that take place in the city, to the city itself, when they should have been assigned to industrial capitalism.

Starting from the concepts of "urban society" and of urbanization as a process, both of Lefebvre in *The Urban Revolution* (1970), Castells (1974) stated: "… at the end of the process, the generalized urbanization, caused by industry, rebuilds the city at a higher level: in this way, the urban surpassed the city…" (p.109, own translation). And taking the difference that Lefebvre made in *The Right to the City* (1978) between the diffusion of the urban phenomenon and the crisis of the city, as the basis, Castells (1974) comments: "The urban diffusion is fairly balanced to the loss of the ecological and cultural particularism of the city. In this way, the process of urbanization and autonomy of the 'urban' cultural model appear as two paradoxically contradictory processes." (p.21, own translation)

Brenner and Schmid (2016) provide a theoretical schema nurtured from these sources. Basing themselves on Lefebvre (1970), they state that "the study of urban forms must be replaced by research of urbanization processes on all spatial scales" (p.332, own translation). – to be fair, it would be more accurate to state that Lefebvre (1970) proposed complementing the study of urban forms with that of urbanization and not to replace it, as he did in his studies of daily life.

On the other hand, Brenner and Schmid (2016) rescue from the work of Castells (1974) "his emphasis on the intrinsically theoretical character of the urban" (p. 318) and thus base their "thesis of planetary urbanization" on the following reflection: "The urban is not a predetermined reality, condition or form, nor is it self-evident; its specificity can only be defined in theoretical terms, through an interpretation of its fundamental properties, expressions or dynamics … The urban is not a universal form, but rather a historic process." (p.331).

But, is it that the same can (and must) be said about all empirical phenomena, that is, that its knowledge requires theoretically identifying or defining it? This is valid for a tree and for an urban neighborhood. We cannot study them if do not have a concept of a tree or a neighborhood. Something else is that these prior concepts, that let us identify trees and neighborhoods, albeit tentatively, are not going to be enrichened and up to a certain degree modified by the empirical study of one and the other.

It is worth remembering here the words of Bachelard (2000):

> "The richness of a scientific concept is measured by its power to distort" (…) "it will be the task therefore to distort the primitive concepts, study the conditions

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> to apply these concepts and above all include the conditions to apply a concept in the sense itself of the concept." (p. 73 – own translation).

The road is that of a work, both theoretical and empirical, of "dialectizing the experience", says Bachelard (p. 19 – own translation).

In addition, the "only" in Brenner and Schmid's (2016) quote above could be interpreted actually, as that it does not need to be defined empirically. Given that these (urban) crowds "are constantly formed, expanded, contract and transformed" (Brenner & Schmid, p. 333), it seems difficult to directly connect them, or univocally explain them, starting from the analysis of urbanization processes. However, caution is reasonable: "The planetary urban universe of today reveals a wide variety of differentiated and polarized situations, conditions and disputes that require a contextually specific, but theoretically reflexive research." (Brenner & Schmid, p. 334).

It seems clear, in any case, that this current of thought presents a hierarchy or superiority of the theoretical over the empirical; a preeminence of the urbanization process over the urban form, which contrasts the epistemology of Bachelard and, in general, that emanating from the "philosophy of internal relations" (Ollman, 1976).

The spatial forms, secondary for structuralists, would allow us to hardly recognize the forces and processes of capitalist urbanization – in the same way as, maybe and with such luck, we can recognize the essence of a phenomenon on its superficial layer. Thus, the concepts are not distorted by the empirical, but rather are (perhaps) discovered as profound or essential substances behind these irregular or chaotic forms or surfaces.

Brenner and Schmid (2016) emphasize, quoting Wachsmuth (2014), that "the entrenched formations of socio-spatial organization are radically reorganized to produce new urbanization landscapes whose limits remain blurry, volatile and confusing and, therefore, are particularly subject to whimsical forms of narration, representation and visualization" (2016, p.330). At the end of the day, it would be in the field of the theoretical where the true knowledge of what these urban landscapes and fragments hide would be reached.

Following this perspective, the "global" capitalist economic system stimulates planetary urbanization processes that have "burst" the city, leaving it as a memory from the past and, in the end, in academic terms, as a sort of relic of urbanists and architects. Alberto, interviewed by our team, also a geographer, academic and researcher on urban planning issues, actually mentioned, that

> "… the city has been the fetish, to give it a name, of urbanists, of those who study. But this fetish no longer works to explain the phenomenon of current urbanization. I prefer to talk more of urbanization rather than of city…"

An intermediate stage in the structuralists' conceptualizations of the city were the works of some critical urbanists, among which the Welsh geographer, Michael Dear stand out; and in Latin America, Carlos de Mattos. When neoliberal capitalism made cities morphologically "explode", we were offered, in the context of the so-called "Los Angeles School", a model of the big city with no downtown, without boundaries, "where the urban was no longer contained in the cities, but rather spreads in a disarticulated way throughout the territory", as Green and De Abrantes (2018, p.214) say, summarizing the approach proposed by Michael Dear (2002). In fact, for De Mattos (1999), and for Dear (2002), Los Angeles, California, represents the most accomplished city model under current capitalism.

In this variant of structuralism, the relations between the social and the spatial tend to be understood as a reflection of the former on the latter. That of reflection is a vision that soon demonstrated being apparent. We mention it because the reflection adheres to what seems to be part of structuralism, namely, that the substantial reality would be behind the empirical facts, and these, either directly reflect it or tend to hide it.

This way of understanding the social-spatial relation is an offshoot of the central critique that Castells aimed at urban sociology, at the Chicago School and at Lefebvre himself in passing, and what led him to reduce the urban to industrialization. Sayer (1995) criticized it as "class reductionism" or "the tendency to assume that everything that existed within capitalist social formations was uniquely capitalist, instead of living this as an open question". (1995, p.186).

In "the urban question", Castells (1974) argued that, although

> "the spatial forms can accentuate or modify certain behavioral systems by the interaction of social components combined in them, there is no independence of their effect and, as a result, there is no systematic link of the different urban contexts to the lifestyles" (p.133, own translation).

Thus, and beyond how confusing this passage may be, the author denies the spatial as a category of analysis, withdrawing from it, all causal power over the social.

In Castells' (1988) tirade against urban sociology on lacking their own object of study (there would be no "urban behaviors" or "city attitudes" (p. 512-513, own translation), the author sets the following question:

> "Is the space a blank page on which social action is expressed with no other mediation other than the events of each situation? Are there, on the contrary, certain regularities in this dialectic process that consist of a social action forming a context and receiving (at the same time) the influence of the already built forms?" (p.500-501, own translation).

And he answers: "In our opinion, there would be an urban specificity in the case of a coincidence between the spatial and the social units…" (Castells 1988, p.515, own translation).

Thus, for Castells, either the relationship between the social and spatial is one of reflection or the space lacks all heuristic importance to know the essences. Ultimately, Castells was systematic in removing importance from space in social and urban life, which structuralists still persevere today.

Lefebvre said that Castells does not understand space: "He sets aside space"; "his is still a simplistic Marxist schema" (quoted by Merrifield, 2002 p. 91-2). In the end, the criticism of Lefebvre (1970) to these ways of understanding the role of the urban in the evolution of capitalism is direct:

> "The confusion between the industrial (practice and theory, whether capitalist or socialist) and the urban ends up by subordinating one to the other in a hierarchy of actions, considering the urban as an effect, a result or a means. This confusion has serious consequences, for it leads to the production of a pseudoconcept of the urban, namely, urbanism, the application of industrial rationality, and the evacuation of urban rationality." (p.33)

On the same issue, Sayer (1992) argues:

> "Where social theories go beyond the analysis of structures and mechanisms to the postulation of their possible effects (perhaps on assuming a hypothetical closed system), the abstraction from space may produce serious errors. Perhaps the most famous example of the difference that space makes is the case of the (aspatial) perfect competition model which becomes a model of spatial monopolies as soon as the abstraction from space is dropped. (…). Even though concrete studies may not be interested in spatial form per se, it must be taken into account if the contingencies of the concrete and the differences they make to outcomes are to be understood." (p.150).

Lefebvre (2013) allows us to close our critical analysis of structuralism: "There is no direct, immediate or immediately understood relationship, therefore, transparent, between the means of production (the society considered) and its space. What there is, are lags: the ideologies intersperse, the illusions get in the way" (p.57, own translation).

III. CONCLUSIONS

Therefore, today we are facing idealist notions about the urban, of the "self-driven essence" type, to which, according to Tilly (2000) social scientists often turn when they want to explain social phenomena. The "economic system" for neoliberals and "global capitalism" for structuralists are examples of "self-propelling essences", essences that empirical facts could not alter, but rather just reflect with different degrees of clarity.

There would be nothing specific in the city that these self-propelling structures could not explain, and the path of urban research would be that of discovering and revealing said latent realities in the superficial marks they leave behind, for example, in their "territorial impacts". These are, mainly, impermeable approaches to empirical facts. They have in common, a metaphysic perspective, a waiver of the empirical or at least its devaluation in promotion of the structures or systems, that at first glance, or so it is said, are not easy to capture.

Far-sighted ideas of this kind have always been around, and they have persistently been in conflict with the work of science. These are the ideas of the pre-scientists that Bachelard (2000) studied, of the metaphysical thinkers that Marx criticized in The Poverty of Philosophy (1987)**9** and quite often, those of the current worshippers of "post-truth" (Kaufman & Kaufman, 2018).

Bachelard (2000) highlights that "the myth of the interior is one of the most difficult fundamental processes of unconscious thinking to exorcise", adding: "In no other way does the alchemist dream about the power of his gold dissolved in mercury" (p.120, own translation). Science is different from revelation, theology and spirituality, says Stephen Gould (1997), evolution biologist, science historian and political activist, in that it offers an understanding of reality through knowledge obtained by research and empirical experimentation.

Overcoming the idealism of the approaches we have analyzed, calls upon us to understand the city and its processes, the

9 Published originally in 1846.

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segregation among them, from the experience and, in particular, from the subjective.

From the experience, we must pay attention to how essential geographical inequalities, the residential segregation, on the intraurban scale, are for the dynamics of capitalism. These are not a simple reflection of social inequalities. "Uneven geographical development is not a mere sidebar to how capitalism works, but fundamental for its reproduction", says Harvey Havey (2012, p.177, own translation) for whom:

> "If geographical differences between territories and countries did not exist, then they would be created by both differential investment strategies and the quest for spatial monopoly power given by the uniqueness of location and of environmental and cultural qualities. The idea that capitalism promotes geographical homogeneity is totally wrong. It thrives on heterogeneity and difference … (p. 176, own translation)

Territorial differences, made clear by the great distances of medieval trade routes, were key in the search for monopoly conditions by the merchants that built capitalism. Braudel (1986) says about this period that, "the longer these chains were, the more they escape common rules and controls and the more clearly the capitalist process emerges" (p.23). This "dynamic of capitalism" (the name of Braudel's book) comprises, ultimately, corrupted or distorted forms of market economics insofar as they weaken free competition and transparency. Capitalism and market economics are, therefore, not synonyms, as neoliberals pretend them to be and how, and not seldomly, structuralism concedes.

In fact, the fabrication and capitalization of "rent gaps" (Smith, 1987), the *quid* of the real-estate industry, equivalent to building inequalities *in situ* to maximize profits of the land. Gentrification as a business consists of this. Promoters buy land at a working-class price and resell it, built, at a middle or upper class price. The reduction of the segregation that this "gentrifying" capitalism favors, rich move closer to less rich people, tends to revert with the displacement of the original residents, caused by the rise in price of everything, but the displacement is usually neither a quick nor unavoidable result (Sabatini Rasse, Cáceres, Robles & Trebilcock, 2017).

From this horizon, we agree with Harvey (2014) that

> The independent manner in which the geographical landscape evolves plays a key role in crisis formation. Without uneven geographical development and its contradictions, capital would long ago have ossified and fallen into disarray. This is a key means by which capital periodically reinvents itself" (p.84).

Overcoming idealist approaches is also done from the subjective. On passing from the classic mechanic to the modern physics of Relativity and Quanta, the subject became part of the object or world that it studies and transforms. Perhaps us urbanists require a similar epistemological jump to understand and act more effectively on the city.

Aside from their abstraction of the space, or perhaps because of it, neoliberals and structuralists put forward the urban as a transcendental or metaphysical reality. Perhaps we should listen to suggestions like those of Raymond Williams (2001) again, who on closing his work *The Country and the City*, recommends us to get off this path and take that epistemological jump:

> What is really significant is not so much the old village or the old urban neighborhood, but the perception and statement of a world in which one is not necessarily a foreigner or an agent, but rather where one can be a member, a discoverer, a source of shared life. (…) what we must observe, in the country and the city alike, are the real social processes of alienation, separation, externality and abstraction. And we must do so, not just on the critical plane, in the necessary history of rural and urban capitalism, but substantially, confirming the experiences that many millions of people discover and rediscover, most of the time under pressure (…) (p.367, own translation).

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CRÍTICA DE LOS ENFOQUES IDEALISTAS
FRANCISCO RAFAEL SABATINI DOWNEY, ALEJANDRA RASSE, MARÍA PAZ TREBILCOCK, RICARDO GREENE
REVISTA URBANO Nº 42 / NOVIEMBRE 2020 - ABRIL 2021
PÁG. 8 - 17
ISSN 0717 - 3997 / 0718 - 3607

Recibido: 01-06-2020
Aceptado: 15-11-2020

APLICACIÓN DEL MÉTODO WUDAPT EN LA CIUDAD DE MENDOZA-ARGENTINA
PARA DEFINIR ZONAS CLIMÁTICAS LOCALES
MARÍA FLORENCIA COLLI, ÉRICA NORMA CORREA, CLAUDIA FERNANDA MARTINEZ
REVISTA URBANO Nº 42 / NOVIEMBRE 2020 - ABRIL 2021
PÁG. 18 - 31
ISSN 0717 - 3997 / 0718 - 3607

APPLICATION OF THE WUDAPT METHOD IN THE CITY OF MENDOZA-ARGENTINA TO DEFINE LOCAL CLIMATE ZONES[1]

APLICACIÓN DEL MÉTODO WUDAPT EN LA CIUDAD DE MENDOZA-ARGENTINA PARA DEFINIR ZONAS CLIMÁTICAS LOCALES

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1 This work was financed by ANPCYT (National Agency for the Promotion of Science and Technology, Ministry of Science, Technology and Production Innovation of Argentina) through the project, PICT 2017-3248 “Energy and Environmental Valuation of the Urban Spaces in Arid Area Cities, Generation of Predictive Evaluation and Rating Tools.”

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DOI: https://doi.org/10.22320/07183607.2020.23.42.02

El trabajo aplica el modelo de Zonas Climáticas Locales en el Área Metropolitana de Mendoza -AMM- utilizando el método WUDAPT y realiza un análisis crítico de su factibilidad de implementación en función de las características de la ciudad. Como hipótesis, contar con una zonificación de las estructuras urbanas homologadas de acuerdo a su condición microclimática es el primer paso para efectivizar la implementación de distintas estrategias de mitigación de la isla de calor a escala ciudad. Las limitaciones del método WUDAPT (World Urban Database and Access Portal Tools) en el área de estudio se vinculan a dos factores: la definición de clases para la zonificación y la condición de homogeneidad necesaria para determinar las áreas de entrenamiento. Los resultados muestran, que la clasificación WUDAPT se estructura en clases puras, con imposibilidad de generar subclases. Las clases puras están definidas de acuerdo a la combinación de un conjunto de parámetros que no describen de manera acabada la condición de los perfiles urbanos del AMM en verano, donde el arbolado en alineación actúa como elemento morfológico estructurante. Esto implica la necesidad de generar subclases, afectando la relación entre Factor de Visión de Cielo, relación alto/ancho de canal vial, Factor de Ocupación de Suelo, superficie impermeable y altura promedio. Otra limitación, es el tamaño de las zonas de entrenamiento, que exige áreas homogéneas de 1 Km2, condición difícil de cumplir en el AMM. En este trabajo la herramienta con clases estándar ha sido adaptada para la apropiada caracterización de las zonas climáticas en ciudades con abundante forestación urbana, cuya tipología es creciente en América Latina. Se concluye que, superadas las limitaciones de la herramienta, las zonas climáticas identificadas dentro del área de análisis muestran correlación con el paisaje de los distintos sectores de la ciudad y homogeneidad térmica intraclase.

Palabras clave: clima urbano, zonificación, LCZ, morfología urbana, Área Metropolitana de Mendoza

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PÁG. 18 - 31
ISSN 0717 - 3997/ 0718 - 3607

The work applies the Local Climate Zones model in the Mendoza Metropolitan Area (AMM in Spanish), using the WUDAPT method and makes a critical analysis of its implementation feasibility based on the characteristics of the city. As a hypothesis, having a zoning of homologated urban structures according to their microclimatic condition is the first step to make the implementation of different urban heat island mitigation strategies effective on a city scale. The limitations of the WUDAPT method (World Urban Database Access Portal Tools) in the study area are linked to two factors: the definition of classes for zoning and the necessary homogeneity condition to determine training areas. The results show that the WUDAPT classification is structured in pure classes, with the impossibility of generating subclasses. The pure classes are defined according to the combination of a set of parameters that do not fully describe the condition of the urban profiles of the AMM in summer. In this season, the trees in rows act as a morphological structuring element. This implies the need to generate subclasses, affecting the relationship between Sky View Factor, road channel height/width ratio, Land Occupancy Factor, impermeable surface and average height. Another limitation is the size of the training areas, which require homogeneous areas of 1 km2, a difficult condition to fulfill in the AMM. In this work, the tool with standard classes has been adapted for the appropriate characterization of climatic zones in cities with abundant urban forestation, whose typology is growing in Latin America. It is concluded that once limitations of the tool are overcome, the climatic zones identified within the analysis area show correlation with the landscape in different sectors of the city and intra-class thermal homogeneity.

Keywords: urban climate, zoning, LCZ, urban morphology, Mendoza Metropolitan Area

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I. INTRODUCTION

Cities drive environmental changes at a global level and are also exceptionally vulnerable to the consequences of said change (Grimmond et al., 2010). Urban planning is fundamental to inform, coordinate and implement measures that improve the environmental quality of cities to face climate change. However, at a local level, there does not seem to be a sensitization, with few initiatives to increase urban resilience to face climate change (Arellano Ramos & Roca Cladera, 2015).

In the metropolis, the morphological characteristics of the spaces, the optical and thermal properties of the materials used in their envelopes, the vegetation index and the elevated contribution of anthropogenic heat, among others, modify the thermal balance, increasing urban temperatures, generating the effects known as "urban heat island" and "urban warming" – UHI and UW. The energy penalization for the cooling induced by the urban heat island is around 0.8 kWH per surface unit of the city and by degree in temperature increase, or 68 kWh per person and degree (Santamouris, Cartalis, Synnefa & Kolokotsa, 2015). The higher urban temperatures have an impact on the quality of life of the urban inhabitant, on the energy consumption to cool buildings, comfort in the open air, contamination, health and the local economy (Akbari & Konopacki, 2004; Sarrat, Lemonsu, Masson & Guedalia, 2006; Taha, 2008; Luber & McGeehin, 2008; Pantavou, Theoharatos, Mavrakis & Santamouris, 2011; Sakka, Santamouris, Livada, Nicols & Wilson, 2012; Hirano & Fujita, 2012). For this reason, creating fresher communities has become a priority for governments; driven mainly by the new goals to reduce carbon emissions in response to global climate change.

Mendoza is the fourth city in demographic and economic importance in Argentina, located in the central western part of the country with a high aridity index, it integrates the Argentinean arid diagonal. It has limited water availability, abundant solar resources throughout the year and an elevated percentage of clear days. The Metropolitan Area of Mendoza (AMM in Spanish) is the most important urban nucleus of west Argentina. The territory is formed by 7 municipalities, it has a surface area of 313.7 km^2, 979,397 inhabitants, a population density of 32 inhabit/km^2 and at an urban scale, 9,950 blocks are identified. It has an open type urban model whose thermal inhabitability, energy and environmental sustainability depend strictly on the presence of urban tree cover (Ruiz, Sosa, Correa & Cantón, 2015). At a microclimate scale, its characteristics of aridity, elevated helophania, and lack of wind and rainfall intensity and frequency, plus a positive thermal anomaly in altitude and the frequent temperature inversions, are optimal conditions for the formation of the heat island. In the city, this phenomenon reaches maximums of 10°C and average values of 6°C, in winter and summer. This produces an increase of approximately 20% in cooling needs of the metropolitan area, with a base of 24°C (Correa. 2006) and impairs comfort conditions in the city's open spaces. Up to 82% of the people feel some degree of discomfort due to heat in the summer period (Ruiz, 2013). At a global scale, the different climate simulations estimated from the general circulation models (GCMs) of the atmosphere, mark a relevant heating for the West Argentina region. The temperatures will increase during the 21st century with greater increases in the summer than in the winter. The regional simulations for the territories of the provinces of San Juan and Mendoza indicate increases of around 3°C in summer months by the end of the 21st century. As a result, the climate change effects forecast for the region imply higher day and nighttime temperatures and less availability of water resources (Villalba et al. 2016). Climate vulnerabilities at a global scale will intensify heatwaves and droughts in the region and will affect the magnitude of the urban heat island.

In Mendoza, the INAHE-Conicet, has been working since 2004 in the characterization and quantification of the spatial and temporal development of the urban heat island within the AMM, determining its causes and effects (Correa, 2006). It has also been working since 2007 in the evaluation of the different mitigation strategies: Efficient tree cover layouts in line with the suitability of the shape of the urban structure and its building density (Ruiz et al., 2015, Sosa, 2018); Increase of the solar reflectivity and the use of cold materials on envelopes, and the use of new green technologies – green walls and covers – associated to different urban contexts (Alchapar & Correa, 2016; Alchapar Correa & Cantón, 2018; Flores Asin, 2019; Martínez, Cantón & Roig, 2014); Design and materiality of the traditional green spaces – parks and squares – (Stocco, 2016). The results show that in sectors with low building density, that currently represent 87% of the AMM, the suitable application of mitigation strategies leads to a reduction of 5 to 6°C in the maximum temperature in 67% of the evaluated scenarios, of 2 to 3°C in the minimum temperature in 58% of the cases and around 3 to 4°C in the average temperature in 75% of the cases (Sosa, Correa & Cantón, 2018), which represents a potential energy consumption saving for cooling that ranges between 24% and 33%, depending on the characteristics of the urban structure where the dwelling is located. In the high building density, the optimal combination of albedo on roofs, facades and paving can reduce urban temperatures by up to 3.5°C and the indoor temperatures in social housing by 2 to 4°C, depending on their typology and orientation (Alchapar & Correa, 2016).

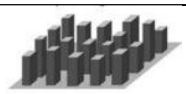
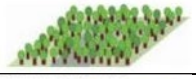
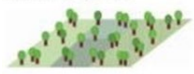
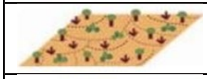
	**1-COMPACTO EN ALTURA** Edificación densa de edificios de más de 10 pisos. Pocos árboles. Pavimento. Materiales de construcción: concreto hierro, roca y vidrio.
	**2-COMPACTO DE BAJA ALTURA** Edificación densa de mediana altura (3 a 9 pisos). Pocos arboles. Pavimento.Materiales de construcción: concreto, ladrillos, roca y cerámica.
	**3-COMPACTO DE BAJA ALTURA** Edificación densa de baja altura (1 a 3 pisos). Pocos árboles. Pavimento. Materiales de construcción: concreto, ladrillos, roca y cerámica.
	**4-ABIERTO EN ALTURA** Edificios de más de 10 pisos separados. Abundancia de cobertura previas (plantas bajas y algunos árboles). Materiales de costrucción: concreto, hierro, roca y vidrio.
	**5-ABIERTO DE MEDIA ALTURA** Edificios de mediana altura (3 a 9 pisos) separados. Abundancia de cobertura previas(plantas bajas y algunos árboles). Materiales de construcción: concreto, hierro, roca y vidrio.
	**6-ABIERTO DE BAJA ALTURA** Edificios de baja altura(1 a 3 pisos) separados. Abundancia de cobertura previa(plantas bajas y algunos árboles). Mteriales de cosntrucción: madera, concreto, ladrillos, roca y cerámica.
	**7- CONSTRUCCIONES BAJAS** Densa edificación de un piso. Pocos árboles, tierra compactada. Materiales de construcción livianos: madera, metal corrugado y paja.
	**8- Grandes construcciones bajas** Grandes edificios bajos (1 a 3 pisos) separados. Pocos árboles. Pavimento. Materiales de contrucción: hierro, concreto, metal y roca.
	**9- CONSTRUCCIONES DISPERSAS** Construcciones pequeñas o medianas dispersas en áreas naturales. Abuendancia de coberturas previas (plantas bajasárboles dispersos)
	**10-ÁREAS INDUSTRIALES** Edificios industriales de baja y media altura(chimeneas y tanques). Pocos árboles. Pavimento o tierra compactada. Materiales de cosntruccion
	**A-BOSQUE/ ARBOLADO DENSO** Densamente arbolado por especies perennes o caducifolias. Coberturas previas en su mayoría (plantas bajas). Zonas de bosques, actividad forestal o parques urbanos.
	**B-ÁRBOLES DISPERSOS** Arbolado disperso de especies caducifolias o perennes. Coberturas previas en su mayoría (plantas bajas). Zonas de bosques, actividad forestal o parques urbanos.
	**C-ARBUSTOS** Arbustos, matas y árboles leñosos bajos dispersos. Coberuras previas en su mayoría (plantas bajas). Zonas de bosque, actividad forestal o parques urbanas.
	**D- PLANTAS BAJAS** Paisaje dominados por cultivos, plantas bajas y/o césped. Pocos árboles. Zonas de parques urbanos o de actividad agrícola.
	**E- ROCAS O PAVIMENTOS** Paisaje de rocas o zonas pavimentadas. Pocos árboles. Zonas rocosas o playas de estacionamiento.
	**F- SUELO DESCUBIERTO O ARENA** Áreas de cobertura con arena o suelo descubierto. Poca cobertura vegeal. Zonas de desiertos o de agricultura (luego de la cosecha).
	**G-AGUA** Grandes cuerpos de agua libres como lagos, mares, ríos, reservorios o lagunas.

Figure 1. Classification of the Local Climate Zones. Source: Adapted from Stewart et al. (2012, p.7)

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From the foregoing, it can be said that there is enough knowledge about the characteristics of the local heat island and the effect of different mitigation strategies on different analysis scenarios. However, to make their implementation effective on a city scale, it is necessary to establish which strategies have a higher cost/benefit viability considering the characteristics of the different urban areas the AMM comprises. It is for this reason, that it is imperative to develop zoning that ties in the characteristics of the different urban areas of the city of Mendoza with their microclimatic response.

Although there are several models that try to classify the sectors of the city considering the characteristics of the urban areas and their microclimate (Castro, Conrado, Fernández, Álvarez & López, 2014; Fernández García & Martilli, 2016; Palme, Inostroza, Villacreses, Lobato-Cordero & Carrasco, 2017; Salvati, Palme & De la Barrera, 2018) the one that is applied most internationally is that of Local Climate Zones (LCZ), developed by Stewart & Oke (2012).

The goal of this work is applying the Local Climate Zone model in the AMM, using the WUDAPT method and making a critical analysis of its implementation feasibility considering the characteristics of the city, which differ substantially from the urban model of cities in Europe, Asia and North America, where the model was conceived, developed and used. The hypothesis considers that on having a zoning of the urban structures in the AMM, standardized in accordance with the microclimatic condition, is the first step to make possible an in-depth analysis of the feasibility of implementing the different heat island and urban warming mitigation strategies, on a city scale.

II. THEORETICAL FRAMEWORK

The local climate model, LCZ, is a landscape classification system. It comprises the categorization of zones that are "uniform regions in land coverage, structure, materials and human activities whose extension is between several hundred meters up to several kilometers on the horizontal scale" (Stewart & Oke, 2012, p. 1884). The categorization is made in 17 LCZ, 15 of these defined by the morphology of the land surface and coverage, and 2 defined by the land use and the predominant construction materials in each one. The standard set is sectorized into two typologies: a) built – LCZ 1 to 10 and b) land coverage – LCZ A to G (Figure 1).

Each Local Climate Zone is the result of a set of parameters (Table N°1) that configure and characterize the morphological properties, of surface coverage, radiative properties and metabolic properties. Each "zone" is named individually, distinguishing the set of surface properties that characterize them.

Bearing in mind that each class describes a built typology or a type of natural coverage, the parameters are defined only for the standard LCZ, but considering that the characteristics of a city do not fit the proposed types, Stewart & Oke (2012) propose as an alternative, the possibility of making a subclassification, combining typologies. The subclasses are justified when the secondary characteristics of the site affect the local climate or may be related with the particular goals of a climate research project.

The LCZ model has been applied in different cases at an international, regional and local level. Globally, Stewart et al. (2014) make an evaluation of the operation of the LCZ layout, using temperature observations in the cities of Nagano, Vancouver and Uppsala. Wang et al. (2018) make an evaluation of the LCZ in arid cities of the United States, applying LCZ for Phoenix and Las Vegas following the WUDAPT method. In Latin America, Monteiro (2018) and Pezzuto & Silva (2013) analyze the relationship of LCZ with the urban morphology, using as a case study the city of Campinas, Sao Paulo, Brazil.

In Argentina, Piccone (2014) studies the urban climate of the city of Tandil, Buenos Aires; he makes a classification of the city from physical variables, construction features, land coverage and population concentration. Roca, Puliafito, Allende, Ruggieri & Pascual (2016) apply the model to the city of San Juan, for the analysis and formulation of an urban comfort model.

In Mendoza, Puliafito, Bochaca, Allende & Fernández (2013) make an analysis of the green areas and the urban thermal comfort. In the zoning which they propose, they assign 12 LCZ to the AMM. However, the work does not specify what the geospatial interpolation method has been to define the limits of the climate zones and their level of fit was. Although the work refers to air temperature data, it does not verify the thermal comparison between zones. The work refers to temperature data of 2003 and 2005, while the results obtained from the morphological and technological characterization correspond to 2013. In this sense, the LCZ methodology establishes that the measurements are simultaneous and temporally coinciding with the morphological characterization of the points taken as reference. It is for this reason that it is important to avoid temporal disassociation between the meteorology data taken and the characterization of the urban structure to generate a correct zoning. It is worth mentioning that the AMM reports in the last 10 years, a transformation process where the peri-urban or transition zones are dynamic and the microclimate variables have also seen modifications (Sosa, 2018). All of this makes clear the need to properly define the LCZ for the AMM.

Local Climate Zone (LCZ)	Ratio of average height aspect of building / width of urban cannon H/W	Sky View Factor SVF	Proportion of land surface with the building coverage	Proportion of land surface with impermeable coverage (rock, paving) (%)	Average construction / height of the tree ZH	Anthropogenic Heat
1.Compact high-rise	>2	0.2-0.4	40-60	40-60	>25	50-300
2.Compact mid-rise	0.75-1.5	0.3-0.6-	40-70	30-50	8-20	<75
3.Compact low-rise	0.75-1.5	0.2-0.6	40-70	20-40	3-8	<75
4.Open high-rise	0.75-1.25	0.5-0.7	20-40	30-40	>25	<50
5.Open mid-rise	0.3-0.75	0.5-0.8	20-40	30-50	8-20	<25
6.Open low-rise	0.3-0.75	0.6-0.9	20-40	20-40	3-8	<25
7.Lightweight low-rise	1-2	0.2-0.5	60-90	<10	2-4	<35
8.Large low-rise	0.1-0.3	>0.7	30-50	40-50	3-10	>50
9.Sparsely built	0.1-0.25	>0.8	10-20	<20	3-8	<10
10.Heavy industry	0.2-0.05	0.6-0.9	30-30	20-40	5-15	<300
A. Forest / Dense Trees	>1	<0.4	<10	<10	<3-30	0
B. Scattered trees	0.25-0.75	0.5-0.8	<10	<10	3-15	0
C. Bush, scrub	0.25-1.0	<0.9	<10	<10	<2	0
D. Low plants	<0.1	<0.9	<10	<10	<1	0
E. Bare rock or paved	<0.1	<0.9	<10	<90	<0.25	0
F. Bare soil or sand	<0.1	<0.9	<10	<10	<0.25	0
G. Water	<0.1	<0.9	<10	<10	-	0

Table 1. Surface parameters for each LCZ. Source: Adapted from Stewart, Oke & Krayenhoff (2014, p. 1064).

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III. METHODOLOGY

Application of the WUDAPT method in Mendoza

For the classification of the LCZ, the WUDAPT tool was used, which is a free access tool that allows loading local data and comparing them with other cities. As was discussed previously, the city analyzed has an open urban model of wide streets and relatively low constructions, where the intense forestation that marks off the urban blocks forms true green tunnels. The urban mass is intensely tree-lined with species planted in lines alongside an artificial watering system. 68% of the tree species are concentrated in three types: Morus alba ('mulberry', 39%), Fraxinus ssp. ('European ash' and 'American ash', 20%) and Platanus hispanica ('London plane', 9%) (Martínez et al., 2014). The urban setup added to the intense forestation of its streets changes the radiation conditions and the wind flow of the road channels, exceeding the effects of the built structure in many consolidated areas of the metropolis.

These particularities of the AMM generate that the parameters defined by Stewart & Oke (2012) to determine the standard classes, cannot be directly extrapolated for the local classification. Because the urban tree line is a structuring and determining element of the LCZ for its capacity to modify the SVF, for this reason it is important to compare the operation of the methodology under maximum and minimum vegetative expression conditions of the forest canopy. According to this, the methodology has initially been run in the vegetative break winter season, where the influence of this parameter is lower due to the deciduous condition of the tree species.

LCZ determination with WUDAPT

The zone definition process with WUDAPT is done following the steps set out by the methodology (Betchel et al., 2015) which is detailed on the website. In this study, work was done using Landsat 8 satellite images, available on USGS's Earth Explorer catalog. To avoid the influence of the forest canopy, which does not allow visualization by remote detection of the area that is under it, images corresponding to winter in the southern hemisphere are chosen, from July 24th 2018 at 02.43:13 UTC.

Once the images are chosen, the LCZ classification is generated in two stages. For the processing and analysis of the satellite images, the QGis software was used. The images were projected in Posgar 07 Argentina Strip 2. The calibration and the atmospheric correction of all the strips is done automatically using the DOS1 method and the digital levels are converted to reflectance values (Piccone, 2014). A virtual raster is formed, all the strips merged and a cut of the area of interest is made. In the second stage, to generate the LCZ with the WUDAPT method, a Supervised Classification is used. For this, representative samples of each land coverage class defined must be chosen, in this case, each LCZ defined by Stewart and Oke (2012). Then, the software uses these "training sites" and with the pixel attributes of a known identity, the unknown identity pixels are classified (Linares & Tisnés, 2011). During this stage, it is fundamental to correctly mark the training areas, the field survey, the aerial photographs, the cartography and the use of Google Earth, bearing in mind that the areas must be representative and homogeneous of the class that it aims to define. Once the selection of the areas is finalized, the classification algorithm is run, the result or output file is a raster file, where each pixel value corresponds to a previously defined category.

Then, a first thermal contrast approach is made of the zones, starting from the surface temperature values acquired from satellite data, specifically the thermal infrared of the previously processed and calibrated images of Landsat 8. Although in later stages it is planned to progress and go in greater depth in the thermal comparison of the zones with measurements on the ground, this first approach looks to validate the morphologically identified zones with the thermal responses of each one.

IV. RESULTS

Having applied the WUDAPT method, it is seen that the study area has a total of 69,724.09 ha, of which only 16,814 ha belong to the AMM, and the rest corresponds to the foothills located to the west of Mendoza with crops towards the east (Figure 2).

The output file of the WUDAPT application is a map where the LCZ of the AMM and its surroundings are represented (Figure N°3). The percentage distribution of the LCZ identified following the construction typology is presented in Table 2. In the map, it is possible to see the urban and peri-urban zones of the AMM, where the predominate Local Climate Zone is LCZ-6 "Open low-rise", reaching a percentage of 27.55%, mainly located in the central area of the urban sprawl. This zone is characterized on having separated low-rise buildings (1 to 3 floors), with concrete and bricks dominating the construction materials. LCZ-8 "Large low-rise" follows with a percentage of 22.71%. This zone has a landscape dominated by large low-rise buildings in an open

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REVISTA URBANO Nº 42 / NOVIEMBRE 2020 - ABRIL 2021
PÁG. 18 - 31
ISSN 0717 - 3997/ 0718 - 3607

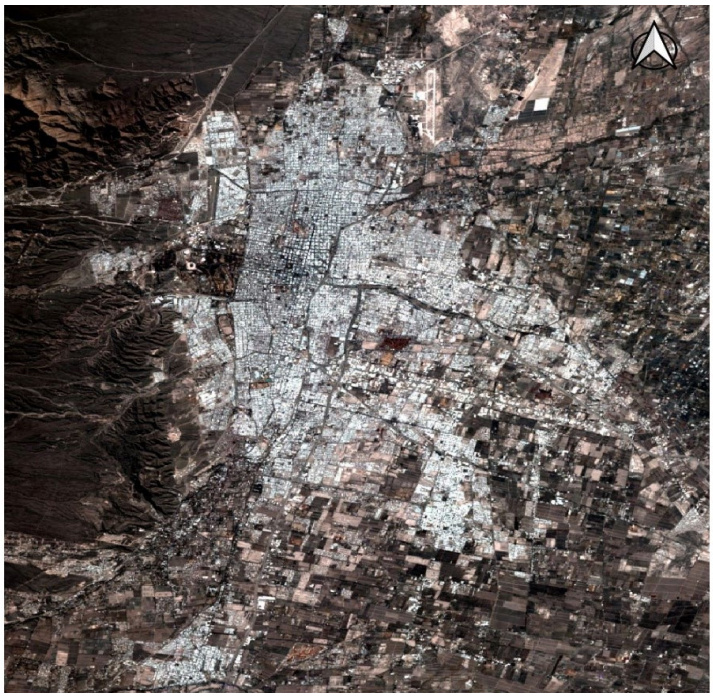

Figure 2. Case study. Metropolitan Area of Mendoza-Argentina. Source: Preparation by the Authors

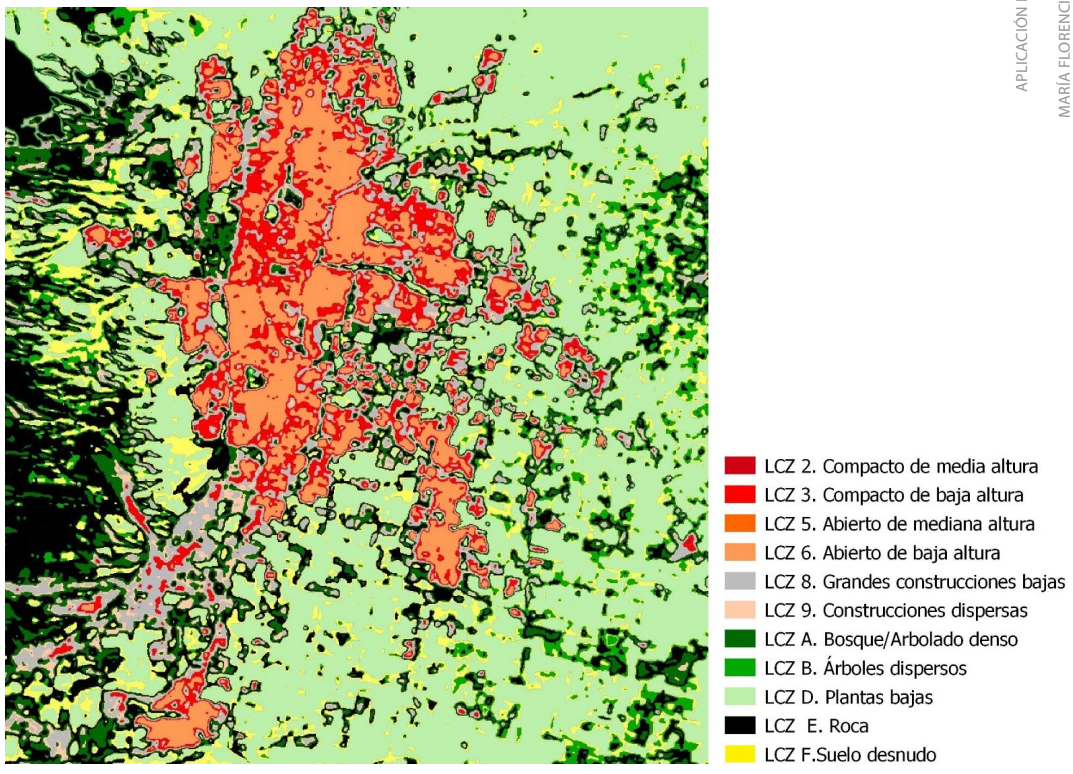

Figure 3. Local Climate Zones. Metropolitan Area of Mendoza. Source: Preparation by the authors.

LCZ – Building Type	Surf in hectares	Percentage
LCZ 2. Compact mid-rise	770.32	4.58
LCZ 3. Compact low-rise	3601.53	21.42
LCZ 5. Open mid-rise	1491.08	8.87
LCZ 6. Open low-rise	4632.21	27.55
LCZ 8. Large low-rise	3819.09	22.71
LCZ 9. Sparsely built	2500.31	14.87
TOTAL	16814.53	100.00

Table 2. Percentage distribution of Local Climate Areas in AMM – Building Type. Source: Preparation of the authors.

Local Climate Zones	Surf in hectares	Percentage
LCZ 2. Compact mid-rise	770.32	1.10
LCZ 3. Compact low-rise	3601.53	5.17
LCZ 5. Open mid-rise	1491.08	2.14
LCZ 6. Open low-rise	4632.21	6.64
LCZ 8. Large low-rise	3819.09	5.48
LCZ 9. Sparsely built	2500.31	3.59
LCZ A. Forest/Dense forest	5144.11	7.38
LCZ B. Scattered trees	4656.76	6.68
LCZ D. Low plants	27376.1	39.26
LCZ E. Rock	8700.38	12.48
LCZ F. Bare soil	7032.21	10.09
TOTAL	16814.53	100.00

Table 3. Percentage distribution of Local Climate Zones in the AMM and Foothills. Type of building and coverage Source: Preparation by the authors

arrangement. It is found to the south of the urban sprawl, where private neighborhoods have grown, in detriment of the agricultural surface. Towards the east, this zone has a heterogeneity of uses, industrial and storage, scattered with gated-neighborhoods whose expansion has grown in the last decade.

In third place, in decreasing order (21.42%) is the category, LCZ-3 "Compact low-rise", located in the central areas of the city of Mendoza, characterized on being the administrative, financial and commercial center of the province, with dense low-rise buildings (1 to 3 floors). This class is also in regional capitals and their immediate surroundings.

Next are LCZ-9 "Sparsely built" (14.87%), LCZ-5 "Open mid-rise" (8.87%) and LCZ-2 "Compact mid-rise" (4.58%). In the AMM, LCZ-1, 4 and 7 are not present. To the west of the city, an important sector with classes A "Dense forests" and B "scattered trees" are seen, which represents the General San Martin Park (374 ha).

The percentage distribution of LCZ in the AMM and the foothills is seen in table N°3, following the type of buildings and coverage. The foothill's sector is categorized with the classes, E "Bare Rock" and F, "Bare soil", finding scattered sprawls of native vegetation. To the north and mainly towards the east of the urban sprawl, zone D "low plants" predominates, which in fact corresponds to the production belt of the northern oasis of Mendoza, represented by a landscape where fruit and vegetable crops prevail.

If sectors of the AMM are taken and a superimposition of the image of Google Earth (100% opacity base) and the LCZ classification (40% opacity) is made, convergence is seen between the urban morphology and the climate zones defined

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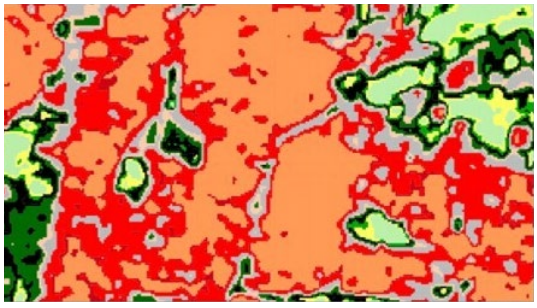
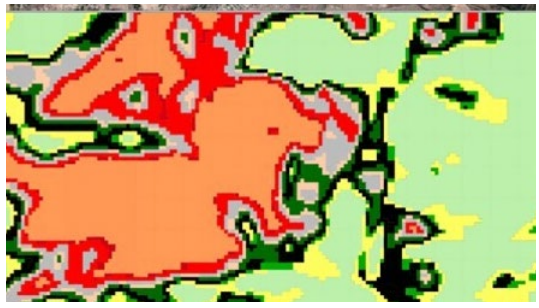
Imagen de Google Earth

Imagen de Google Earth



Clasificación LCZ



Clasificación LCZ

Superposición de imagenes de Google Earth y Clasificación LCZ

Superposición de imagenes de Google Earth y Clasificación LCZ

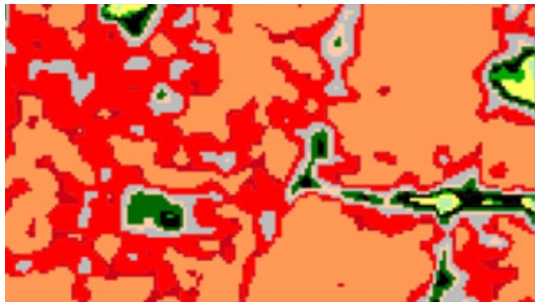
Figure 4. Cartographic superimposition. Mendoza city hub – LCZ. Source: Preparation by the authors
Figure 5. Cartographic superimposition – City of Luján de Cuyo – LCZ. Source: Preparation by the authors.

using WUDAPT. As an example, figures 4 and 5 show the results of this process in the central hub of the city of Mendoza and in the city of Luján de Cuyo with their respective surroundings. It is seen that the morphological patterns and land use, represent different climate zones. Such is the case of the regional capital of Mendoza, where the sectors of greater building density are superimposed with LCZ 2 and 3, and the surroundings where larger opening spaces are perceived, LCZ-6. The same occurs with General San Martin Park and the urban squares, which are identified as LCZ A and B.

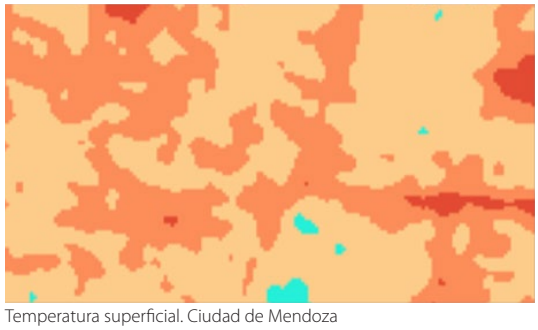
In the city of Luján de Cuyo, it is seen that the sector which greatest building density is categorized with LCZ-6, and in the surroundings, where the agricultural sectors predominate, is categorized as LCZ D; the same occurs for the areas with greater forestation which are represented through LCZ A and B. At a Street level, morphological correlation of the landscape is seen with the defined LCZ. This can be seen in Figure N°6, where the street level image is distinctive of the building typology defined using the WUDAPT method,

Figure 6. Street level image correlation, LCZ classification and Google Street View image. Source: Preparation by the authors.

Ciudad de Mendoza. Color natural, RGB (4,3,2)



Zonas Climáticas Locales. Ciudad de Mendoza



Temperatura superficial. Ciudad de Mendoza

Figure 7. Thermal comparison. LCZ classification – Surface temperature. Source: Preparation of the authors.

Regarding the thermal comparison of the zones, it is seen that the surface temperature has a spatial correlation with the classes defined using the WUDAPT method, that is to say, that the zones have a similar thermal response (Figure 7). Nevertheless, as the satellite image corresponds to 11:27am (local time), it cannot be corroborated that this pattern is complied with at other times.

V. DISCUSSION

The LCZ system provides a simple and comprehensive discretization of the urban landscape. It looks to achieve a balance between precision and applicability. The fundamental limitation of the model is that it does not allow capturing the particular aspects of each site analyzed, mainly in cities of a heterogeneous geometry and with abundant urban vegetation, as is the case of the AMM, as this is a reductionist system.

Analysis of the international bibliography shows that these limitations have been overcome through the generation of subclasses. There is a clear difference between the works done in European, North American or Asian cities compared with the Latin American cities. In the former, all the classes used or a high percentage of them, are pure; in the case of the cities of Phoenix and Las Vegas, 14 LCZ were defined, all standard classes (Wang et al., 2018). Stewart et al. (2014) identified 8 classes in Vancouver, of which just one is a subclass. A different panorama is seen in the Latin American cities, where most of the zones or all are subclasses. Monteiro (2018) in Campinas, Brazil, works with 17 zones, all subclasses. Roca et al. (2016) in San Juan, Argentina, define 8 zones, 7 subclasses. This difference in the methodological approach shows that the method has been conceived in cities that have homogeneous landscapes of a greater horizontal surface, with narrow road channels and low or no presence of urban tree lines.

Given that the pure classes defined in the method do not represent the typical characteristics of Latin American cities, the need arises of creating a large number of subclasses, which undermines the main goal of the methodology, namely standardizing and systematizing the study of urban climate. As a result, the classifications of Latin American cities cannot be standardized and contrasted at an international level, which is why in spite of the application of the tool, the studies of each researcher are hard to compare or extrapolate to other cities.

In the particular case, the abundant urban forestation in the AMM represents a structuring element when it comes to defining the LCZ, as this particular aspect determines SVF values that do not match the properties established for the built typologies of the WUDAPT method. At a local level, bearing in mind just the urban morphology, the sectors of the administrative center of the AMM should be classified in LCZ 2, where the SVF values defined are between 0.3-0.6; however, the SVF measurements made on site have values of 0.13 (Sosa et al., 2016). According to what has been discussed and in order to manage these differences, most of the classes defined for the AMM should be subclasses, repeating the issue identified in the rest of the Latin American cities. Facing this, this work proposes defining, at a local scale, a classification with no or few subclasses. For this, a modification is made to the procedure of the LCZ and WUDAPT through the elimination of one of the variables. At an international level, Salvati et al. (2018) also propose a modification to the LCZ system aiming at improving the classification and attaining a better thermal fit, correlating three morphological parameters with the UHI value in summer and winter.

This work suggests first developing a morphological base, which allows the suitable characterization of the urban spaces in winter, minimizing the effect of the forestation, defining the LCZ based on the urban geometry, comparing the thermal response in winter, to adjust the definition of the zones. This generates a first LCZ definition, which will be analyzed and adjusted later in summer, to extract from the parameters that define the pure zones in the WUDAPT methodology, those that have a higher statistical weight in its thermal response. This will allow representing particular aspects without moving away from the reductionist goal of the system, or compromising its possibilities of standardization. In addition, this first fundamentally morphological based zoning, is a tool to move forward in the systematic analysis of the cost/benefit feasibility of the widespread implementation of different urban warming and heat island mitigation strategies, analyzed at a local level, whose benefits have been shown to be strongly dependent on the morphology (Alchapar & Correa, 2016; Sosa ***et al.***, 2018).

VI. CONCLUSIONS

With the LCZ classification made for the AMM, Argentina with the WUDAPT method, 11 classes were defined, 6 of building typologies and 5 of coverage. Of the built typology, the zone that predominates is "LCZ-6 Open low-rise" with great development in the central zone of the urban sprawl. LCZ-8 "Large low-rise" which is essentially to the south of the urban sprawl and to the east, where there is a heterogeneity of uses, industrial and storage, with some gated-neighborhoods. In third, in decreasing order is the category, LCZ-3 "Compact low-rise", located in the central zone of Mendoza, characterized on being the administrative, financial and commercial hub of the province. This class is also found in regional capitals and their immediate surroundings. LCZ-9 "Sparsely built", LCZ-5 "Open mid-rise" and LCZ-2 "Compact mid-rise" come next.

Making a correlation of the satellite images, images at street level and the zoning developed, it is seen that the morphological and land use patterns are distinctive from the zones defined through the WUDAPT method. The LCZ defined would seem to fit the thermal response, a priori, it is seen that the surface temperature corresponds spatially with the defined classes, that is to say that intra zone they have a similar thermal response. However, it is planned to continue with the thermal validation, comparing on site measurements and satellite thermal infrared images and to go into greater depth with the analysis of the behavior of the microclimatic variables.

Analyzing the WUDAPT method, it is identified that although this is a process with numerous steps and multiple variables to bear in mind, it is run in a simple and economic way, as on having data and knowledge of the study area, it can be done completely using remote detection. It is a very useful tool for a first approach to the classification. It is concluded that the application of the LCZ Methodology with the WUDAPT method in the AMM has been useful to generate a morphological base, where the urban landscapes with different geometries are distinguished. Although WUDAPT does not allow the creation of subclasses, it is considered that it can be adapted to the local reality, through the selection process of satellite images, opting for winter images to avoid the interference of the canopy. This methodological proposal can be extrapolated to other Latin American cities that have similar characteristics in order to keep the reductionist goal of the classification system proposed by LCZ.

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REVISTA URBANO Nº 42 / NOVIEMBRE 2020 - ABRIL 2021
PÁG. 18 - 31
ISSN 0717 - 3997 / 0718 - 3607

Recibido: 30-06-2020
Aceptado: 01-11-2020

URBAN GROWTH AND SOCIOESPATIAL SEGREGATION IN VALDIVIA[1]

CRECIMIENTO URBANO Y SEGREGACIÓN SOCIOESPACIAL EN VALDIVIA

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PÁG. 32 - 43
ISSN 0717 - 3997 / 0718 - 3607

1 This work was carried out within the framework of the Fondecyt Initiation Project N°11170019 “Local integrated development strategies in the cities of southern Chile, growth, vulnerability, crisis and resilience?”.

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DOI: https://doi.org/10.22320/07183607.2020.23.42.03

Este artículo analiza e interpreta el crecimiento urbano reciente y los procesos de segregación socioespacial en la ciudad de Valdivia (Chile), y su relación con el avance del mercado inmobiliario. La ciudad, pese a su tamaño medio, crecimiento moderado y buenos indicadores de calidad de vida, estaría reproduciendo lógicas similares a otras urbes de mayor tamaño. Para el estudio, se aplica una metodología que combina datos estadísticos con entrevistas en profundidad a actores-clave, y se elabora, además, una matriz de restricciones que sintetiza espacialmente y por componentes la segregación existente. Como resultado, se identifican los sectores con mayor y menor crecimiento inmobiliario, ahondando en las formas y tipologías del mismo; así como la percepción de los fenómenos de segregación existentes en Valdivia. De esta manera, junto con un análisis que pone su énfasis en ciudades de menor tamaño y dinamismo, se generaría un aporte metodológico que podría ser aplicado a otros casos de estudio.

Palabras clave: crecimiento urbano, mercado inmobiliario, segregación socioespacial, Valdivia.

This article analyzes and interprets recent urban growth and socio-spatial segregation trends in the city of Valdivia (Chile), relating them, at the same time, to the progress of the real estate market. Despite being a medium-sized city, with moderate growth and good quality of life indicators, it would seem to be reproducing similar logics as other larger cities. For this reason, a methodology that combines statistical data with in-depth interviews with key players is applied and a restriction matrix that summarizes existing segregation spatially and by components is made. As a result, this study is able to identify the sectors with the highest and lowest real estate growth, considering both their forms and typologies; as well as the perception about existing segregation phenomena in Valdivia. In this way, alongside an analysis that places emphasis on smaller, less dynamic cities, a methodological contribution would be generated that could be applied to other case studies.

Keywords: urban growth, real estate, socio-spatial segregation, Valdivia.

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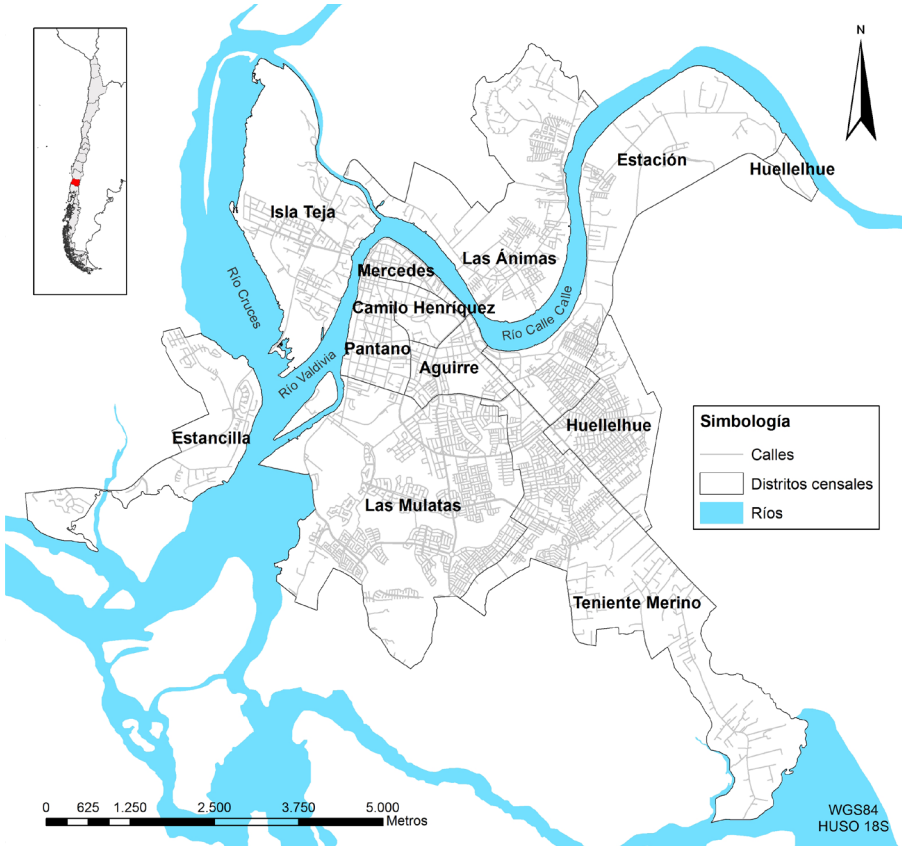

Figure 1. Location and Census Districts of Valdivia. Source: Preparation by the authors based on INE data.

I. INTRODUCTION

Cities today constitute the main spaces of social and economic reproduction, generating a strong dynamism, but also problems that are still awaiting a response. This is the case of socio-spatial segregation. Some authors have outlined the impact of the real-estate market on urban logics (Hidalgo & Janoschka, 2014; De Mattos, 2016) and the continuing processes of unequal access to cities, that are reflected in a persistent socio-spatial segregation (Clichevsky, 2000; Sabatini, 2000), though generally starting from the study of metropolitan spaces (Ziccardi, 2008; Ruiz-Tagle & López-Morales, 2014). In this sense, this work questions, starting from the case of Valdivia, about what the way, dimension and orientation of urban growth has been in the last five-years considering the influence of the real-estate sector on this. Its second goal is making an analysis and interpretation of the urban segregation there is within the city with a double perspective: spatial (neighborhoods perceived as more or less segregated) and sectorial (elements perceived as those that contribute in a greater or lesser degree to said segregation). Thus, the question this article focuses on is whether recent real-estate growth in Valdivia has been heterogeneous and would be related to the perceived socio-spatial segregation there is. A methodology that combines qualitative and quantitative techniques has been used for this, after a revision of the secondary sources.

Valdivia is located in the south of Chile, between the Calle-Calle and Cruces rivers, which have set its historic boundaries, ones exceeded for several decades now (Figure 1). Maturana, Peña-Cortés, Ramírez & Telias (2019), mention that the situation of Valdivia, set away from the 5 Sur Highway, complicates its effective connection with the rest of the country, this being one of the factors behind its low demographic growth (166,000 inhabitants according to INE, 2017). To put the case study in context, it is necessary to highlight several milestones that have marked its history and set up its dynamism. In this sense, Espinoza & Zumelzu (2016) differentiate four phases: a pre-industrial period from 1850; a second period characterized by industrialization linked to

the arrival of German immigrants who had a cultural and economic influence on the area; a third period, marked by the 1960 earthquake and post-earthquake period, which put the brakes on urban development and reconfigured urban growth and expansion patterns towards the southeast sector, where the Housing Corporation and private entities would gradually expand the city and; finally, from 2007 when Valdivia was named as a regional capital, a period where it began to generate more appeal for investors and the population in general, having been considered up until recently as a "lethargic" city within the Chilean urban system (Borsdorf, Sánchez & Marchant, 2009).

Within the framework of the research by Fuentes, Link & Valenzuela (2017), Valdivia appears both in 1992 and 2011 as characterized within average third-tier cities, with a low level of industrialization and a concentration of activities around the service sector, with a growth that would not be based on the exploitation of natural resources or on tertiary specialized and complex activities. In addition, a lack of efficient territorial organization plans is identified, along with an updated land use regularization by the public institutions in charge of this. In this sense, the municipality has had its Communal Regulation Plan and Communal Development Plan for at least a decade, with just private entities taking on urban expansion and construction, without any clear guidelines or plan. The results are presented below, after a brief review of the literature and presentation of the methodology.

Spatial segregation and the real-estate market

There are several definitions of the concept of spatial segregation. For Clichevsky (2000) this implies the differentiation and distancing of part of the population, with exclusion processes being essential, with negative effects like the increase of poverty in the most vulnerable sectors (Prada-Trigo, 2018), inequalities, urban fragmentation and social polarization; which can be analyzed both from a socioeconomic or sociocultural perspective, with the former being the one of interest for this research. According to Garín, Salvo y Bravo (2009), this would refer to the spatial separation between the residential areas of high- and low-income groups. Torres (2013) highlights that, in the modern city, land that can be modified as the owners so wish has had a profitable value, increasing the added value and the cost of urban life, leading to the abandonment of those excluded and vulnerable sectors that cannot get access to purchase desired dwellings, with the house price being a segregating element.

Considering this, among the significant variables that can be presented between one class and the other, leaving clear the socioeconomic differences that divide the city, there are components related to the materiality and quality of the dwelling, just as Sorribes (2012) mentions; elements related to environmental risk; limited access to services and facilities (Agostini, Brown & Gongora, 2008; Ziccardi, 2008; MacDonald, 2011); polarization of the city into homogeneous neighborhoods, which reduces the possibilities of social mobility (Saraví, 2008); or labor precarity and informality (Winchester, 2008). The differences between these components are what define one sector of the city from others, with the most vulnerable sectors being those with the worst indicators in these components.

For Garín et al. (2009) and Azócar, Henríquez, Valenzuela y Romero (2008), the social housing policy has also had an impact on residential segregation, through a system of subsidies, as it meant locating its beneficiaries in lower cost areas, where there were already poor settlements, minimizing the possibilities of social integration, something that Sabatini (2000) confirms. For Azócar et al (2008) a stigmatization would have been produced in these neighborhoods, accentuating the factors or conditions of social risk that lead to poverty. Thus, although the living conditions of the poorer population may have improved in Chile, their spatial distribution would not have been fundamentally changed.

In this regard, one of the most significant debates regarding socio-spatial segregation refers to whether there would have been a greater integration in recent years (Sabatini, Wormald, Sierralta y Peters, 2009) or, on the contrary, there would have been an increase of the segregation (López-Morales, 2015). The latter questions that some of the works on socio-spatial segregation are not conceptually or methodologically coherent with social reality or with the scale of this phenomenon (Ruiz-Tagle & López-Morales, 2014). In this sense, most studies turn to methodologies that, through statistical indexes and indicators, try to approach the concept of socio-spatial segregation, generally at a district scale (Garín et al., 2009; Azócar et al., 2008). However, as Espino (2008) states, there are also a series of symbols, statues and imaginaries that are limiting factors when attempting class integration, a perspective that this work takes on to try to approach the perception of socio-spatial segregation in Valdivia and its relationship with its recent growth reaching the components and causes of this (Ruiz-Tagle & López-Morales, 2014). To address this perspective, a mixed methodology is used which is explained in the following point and that is articulated starting from the use of interviews and statistical information.

Added to this, authors like Daher (2013) and De Mattos (2016), state that the real-estate sector has become fundamental for the new economic model developed since the 1970s (Hidalgo & Janoschka, 2014). The overaccumulation of capital and the need for investment, added to urban and population expansion, found in this,

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a strategic niche, working together with other sectors of the economy. In this way, the real-estate sector takes on a key role in the development and growth of cities, since it moves between the financial sector and the real economy, connecting to investments that are in pension funds, insurance, credit, etc. (Cattaneo, 2011; Gasic, 2018). The market in this case acts as a modeler of the city's production, through an urban business model (Harvey, 2007), where economic efficiency decisions prevail over other aspects like socio-spatial integration or equal access to goods and services. The result is a "com-fuse" (compact and diffuse at the same time) city model that advances in a segmented way over rural spaces (Abramo, 2012), along the main transportation routes and a densification of the city center from a selective verticalization, where the aforementioned processes of urban segregation would take place (Fuentes & Pezoa, 2017). From this perspective, the strong real-estate growth and existing deregulation of this, would act as stimuli towards this socio-spatial segregation.

II. METHODOLOGY

This work applies a methodology that combines qualitative and quantitative techniques, triangulating data of different natures to obtain more reliable results (Yeung, 2003), which allows addressing the study problem from different angles. This goal is based on the value of applying mixed methodologies over others that focus only on qualitative or quantitative data. In this sense, statistical data of building permits and final inspection certificates were used, where the ArcGis software helped to spatialize the growth of Valdivia, and to understand the distribution of infrastructure. In addition, in-depth interviews were made. Fuster (2016), regarding these, mentions that these give the person interviewed freedom to express themselves, but at the same time there is control over the information, with the advantage of being able to adapt to the informant and subtly guide dialog, a very valuable complement for quantitative methods. This work also proposes, in a novel manner, integrating a restriction matrix from the research of Barrenechea, Rodríguez y Troncoso (2014). This was adapted to the research needs, generating specific dimensions and aspects, starting from the segregation dimensions identified in the revision of the literature, to try to attain a spatial systematization of this, making reference to the spatial distancing produced by the people's purchasing power (Toro & Orozco, 2018). For this, the components that have an impact on the separation of classes were chosen, considering aspects that according to the literature have an influence on this process, using indicators like the house price and its quality or the number of green areas, along with other insights: security, accessibility, among others. To complete this, the interviewees were asked to give a rating for each preestablished sector of Valdivia, using a progressive scale regarding the districts and dimensions that were defined previously (Table 1). In this sense, those variables that do not present major obstacles were considered as "0" and those that were as "3", with these being identified by the interviewees as the main problems to overcome urban segregation. The data was counted in the matrix's columns and rows, generating a desegregation, in this way, of the socio-spatial vulnerability by urban sectors and components thereof.

III. RESULTS

Urban growth and evolution of the real-estate market

The spatialization of building permits between 2014 and 2019 allows visualizing their concentration and seeing where Valdivia is growing (Figure 2). Most non-habitational permits are located in the districts of Mercedes, Camilo Henríquez, Pantano and Aguirre, these being the central spaces for inhabitants and visitors since, as can be seen, these are the ones with the highest number of commercial projects, mainly corresponding to hotels, hostels and cabins (Figure 3). The permits related to habitational and mixed use, as well as those that are smaller than 64 units (Figure 4) are mainly in the districts of Huellehue, the southern sector of Las Ánimas, the southeastern outskirts of Las Mulatas, and the northern part of Teniente Merino, which mainly correspond to individual enterprises like cabins or extensions for rental purposes, generating a microeconomy focused on university students and tourists. These fundamentally coincide with the historic distribution of social housing in Valdivia (Figure 2). In addition, those permits for 65 to 250 units, along with those of Figure 2, show where the city is residentially growing towards through private actors who foster the city's Southeastern growth, building private gated communities and subsidized social dwellings, located in these sectors. In general, the outskirts of Valdivia would be developing this dynamic, as was mentioned in some interviews:

> [ENT-1]: *In general terms, an "inside-out" growth model has been generated, mainly towards the south, actually dominated by longitudinal corridors over transversal ones, so accessibility has been allowing the city to expand.*

It is also relevant to mention the presence of high-rise building projects (Figure 5), which range from 4 to 11 floors in the different districts of the city, concentrated in Mercedes and Isla Teja. The case of Valdivia is particular in that the verticalization processes coincide with the area where people with the highest purchasing power are concentrated, with this type of infrastructure being a symbol of modernity and economic status in the city. In this sense, there is a particular case, where a permit for a 19-floor tower with 250 housing units appears, located in the north sector of Las Mulatas (an

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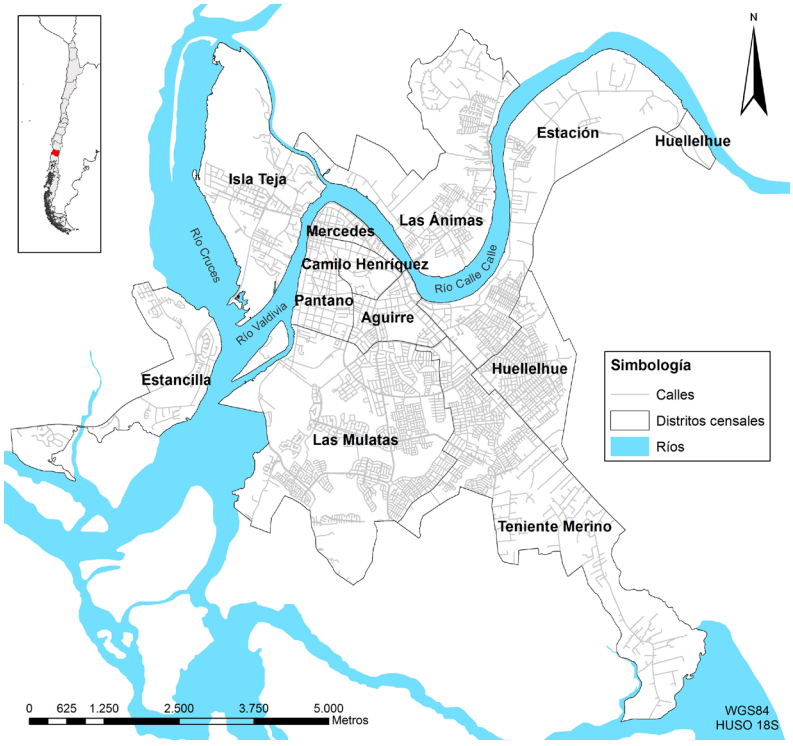

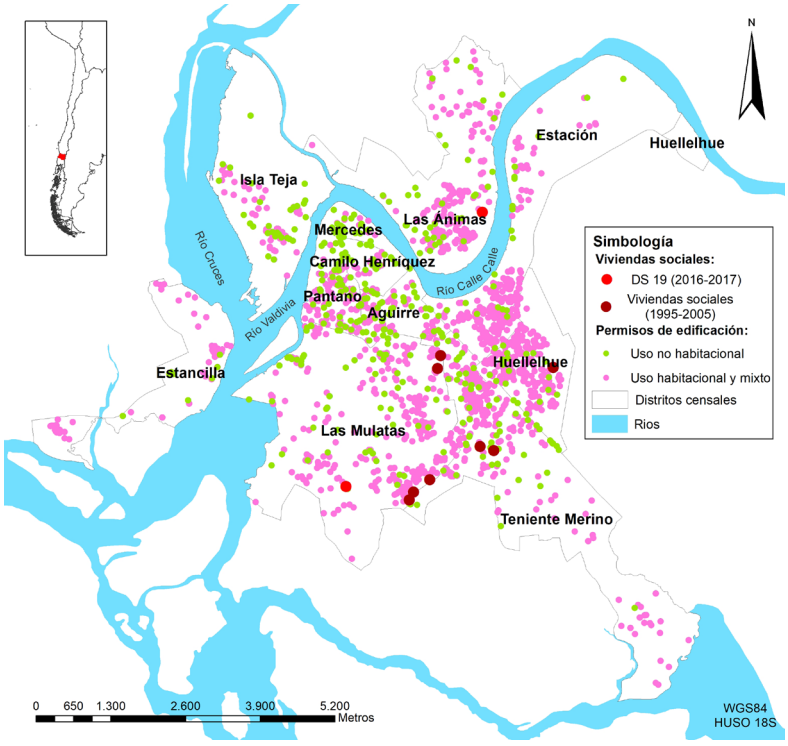

Figure 2. Building permits by use (2014-2019) and social housing in Valdivia. Source: Preparation by the authors based on the INE data.
Figure 3. Non-habitational building permits, 2014-2019. Source: Preparation by the authors based on the INE data.

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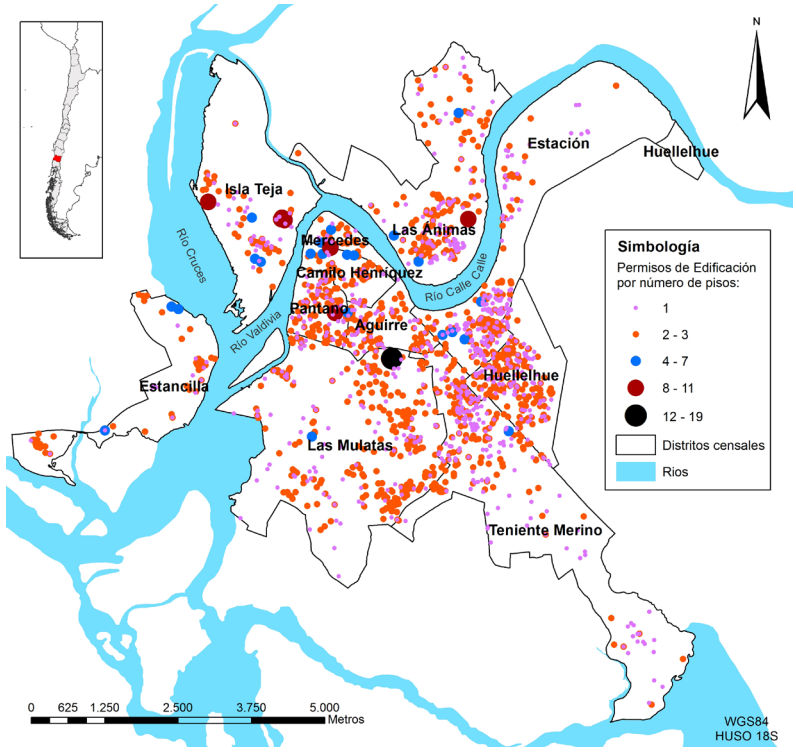

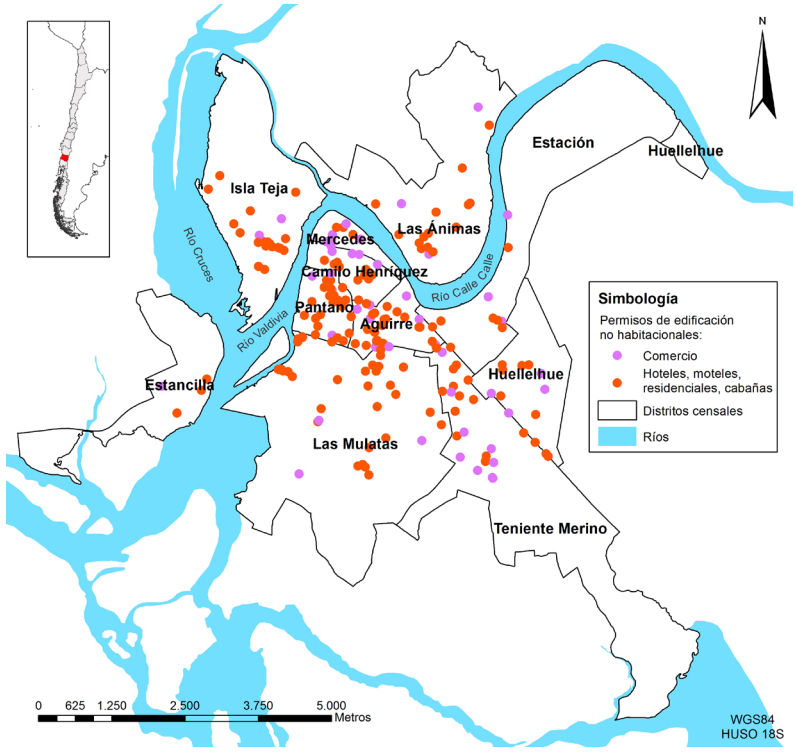

Figure 4. Building permits by units, 2014-2019. Source: Preparation by the authors based on INE data.
Figure 5. Building permits by number of floors, 2014-2019. Source: Preparation by the authors based on INE data.

Census Districts	Dimensions of urban segregation									
	Access to Services	Dwelling materiality	Green areas	Socioeconomic diversity	Environmental risk	Labor informality	Housing price	Security	Sectorial total	Ranking
Las Animas	0,5	2	2	1,5	2	3	1	3	1,8	1
Pantano	1	2,5	2	1,5	2	2	1	2	1,7	2
Las Mulatas	2	2	1,5	1	2	2	1	2	1,6	3
Huellelhue	2	2	0,5	2,5	2	2	1	1,5	1,6	4
Teniente Merino	1,5	1,5	1,5	1,5	2	1	1,5	2,5	1,6	5
Aguirre	0	1	1,5	2	2	1	2	1,5	1,3	6
Estación	1,5	1	1,5	1,5	1,5	1	1,5	1	1,3	7
Camilo Henríquez	0	1,5	2	1,5	1	0	3	1	1,2	8
Estancilla	2	0	0	3	1	0	3	0	1,1	9
Mercedes	0	0	1	1	0,5	1	3	1	0,9	10
Isla Teja	0,5	0	0	2	1,5	0	3	0	0,8	11
Total por restricciones	1	1,2	1,2	1,7	1,5	1,1	1,9	1,4		

Table 1. Result of Restrictions Matrix. Source: Preparation by the authors based on Barrenechea et al. (2014).

area that still did not have verticalization projects). This responds to the fact that the city will eventually start to densify with high-rise projects in other districts, but without a Communal Regulatory Plan (PRC in Spanish) that regulates them, ones which considerably change the city's traditional landscape, as has been mentioned in other cities (Pérez, González, Villouta, Pagola y Ávila, 2019). Alongside this, there is an important concentration in Las Ánimas, where habitational permits and projects of residences or cabins predominate, being an aspect that, on promoting trade, tourism and new residences, could generate a greater integration of this district to the commercial dynamics of Valdivia and a greater connection of its population with the rest of the city.

In summary, it can be seen that, while most habitational and mixed permits correspond to working-class sectors and the peripheries, like Las Mulatas or Teniente Merino, those which refer to high-rise buildings or to commercial and hotel-based uses, tend to be more centrally located and in the most prestigious neighborhoods, like Isla Teja, Mercedes or Camilo Henríquez. The result is a dual model, where the most attractive areas for tourism, business or middle and upper classes receive greater investment, while the working-class sectors correspond to local enterprises, social housing or, in the best case, gated-communities. The result is a dual city in the sense that Abramo (2012) points out, and would respond to the neoliberal model (Hidalgo & Janoschka, 2014). This situation will possibly have an effect on the perception of spatial segregation, and referring us, just like in other cases of Chile and Latin America, to similar spatial logics detected inside the city (Daher, 2013; Dammert, Delgadillo & Erazo, 2019).

Spatial segregation

The application of the matrix (Table 1) showed that in Valdivia, there would be, as was inferred from the statistical analysis, a segregation marked by polar opposites, that is to say, there is a voluntarily segregated group corresponding to a high socio-economic class, who look to live in the outskirts, mainly in Isla Teja, Estancilla and the eastern part of Estación. While, the most vulnerable population would be located on the outer strip to the south of Las Mulatas, Teniente Merino and Huellehue, with some social housing and occupied areas concentrated in Las Ánimas.

From the results, Las Ánimas ends up being the district with the greatest restrictions and thus the most segregated of the city, with this being a historically working-class and stigmatized neighborhood. In addition, it is in this and in some sectors of Las Mulatas where recent international immigration has arrived, who in some cases work informally, increasing job insecurity and the precariousness of the district. On the other hand, eradications made from Santiago to Valdivia, have generally been located in this

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district. In this regard, Godoy (2019) mentions that the moves the State makes, do not always relocate vulnerable families in districts that are much different from where they came, that on occasions it ends up worsening their quality of life, assigning precarious dwellings to them in marginalized sectors that are disconnected from their former networks, increasing segregation and insecurity, which seems to be the case of Las Ánimas.

Pantano and Las Mulatas follow Las Ánimas in the ranking. The former, a historic industrial neighborhood, has a mix of heritage façades with houses of a precarious infrastructure, where extensions of the dwellings also dominate, for rooms to let. There is a certain degree of heterogeneity regarding people who live in the district, especially in terms of education levels, as recently enterprises related to creative industries have been set up, this being the reason for the educational differences. This sector's heterogeneity is left clear by the proximity of some dwellings and others, which does not mean there is no inequality and segregation between those living there, but rather this is lived in a much closer and reduced space (Godoy, 2019; Jirón & Mansilla, 2014). The neighborhood of Las Mulatas stands out by its heterogeneity and its lack of access to administrative services, being very dependent on the city center. Data shows a public disinvestment in the sector's transportation services, making the differences between those who can access private transport and those who depend on public services visible (Jirón & Mansilla, 2014). This aspect, added to the general deficiency that Valdivia has regarding the materiality of the dwelling, leads to this being a district where in some areas the quality of life is good, while in sectors mainly in the southern area, it is complicated to maintain a suitable standard, replicating on a smaller scale, the dynamics already detected by other authors (Saraví, 2008; Winchester, 2008).

The districts of Huellelhue, Teniente Merino and Estación come next in the ranking, as their restrictions are not as high and they are districts that, in general, do not have major problems beyond the backfill of marshlands and the sewerage issues of Aguas Décimas. Aguirre and Camilo Henríquez follow the same trend as Teniente Merino, with the difference being the central location of the first two. These are mixed zones with residential and commercial uses, representative of the average standard of Valdivia.

At the top end are Estancilla, Mercedes and Isla Teja, the city's privileged sectors where there are several gated real-estate projects or private plots. The first is a district that has large green areas as lotting projects prevail. In this respect, Rojo (2015) indicates that this type of housing in closed spaces generates that reality is distorted in such a way that, living there leads to ignoring other urban realities, generating segregation on a deeper scale than simply the spatial one, since the symbolic aspects and psychological aspects of status are given to these processes (Janoschka, 2016). Mercedes, on the other hand, corresponds to the city's commercial and tourism sector. This is where the greatest dynamism and flow of people can be seen, alongside Isla Teja, especially in the summer months. It is a sector that is well provided for with services and facilities. Also, the district has natural landscapes for those who live or visit it, meaning that it is expensive to live or buy in this sector, caused by the high demand there is to use land in the downtown area and all its associated benefits. This is seen in extracts from an interview:

> *[ENT-1]: Isla Teja in under 3 or 5 years, has experienced an enormous transformation, passing from being a residential area to a mixed one. There are stores, restaurants, banks, the Austral University. Ultimately, a kind of centrality is taking place that somehow responds to the shortcomings our downtown has, and coincides with the people who have a higher purchasing power. In one way or another, downtown is moving the center of gravity, the people have to come here, cross Isla Teja to run errands. All the public services are here, but I wouldn't be surprised if tomorrow offices start to pop-up on Isla Teja while the downtown area doesn't improve its urban standards.*

Finally, Isla Teja is the sector with the least restrictions on average, but the cost of living is really high. It is a district that has historically been a privileged sector of the city, where the first German families set up home, later donating land to the Austral University, which turned Isla Teja into a tourist attraction, with Saval Park, the Botanical Garden and the Arboretum, along with the German façades. All this attracts tourists and investors, who saw the possibility of a target audience to begin building in this sector, along with investments in businesses. Janoschka (2016) mentions that this type of urban formation is violent for those who cannot access it, making these places desirable due to the amount of capital invested, creating sectors with all the comforts for a quality urban life, being promoted both by private entities and the State, even more so in a city where the touristic spaces are those which have the best projects. Pontes et al. (2020) indicate that, in the end, it is the relationship between tourism and the real-estate market that causes certain areas to be more valued than others, thus segregation in this case is strongly influenced by the tourism approach Valdivia has, with districts having greater urban benefits than others. Figure 7 spatially represents the districts and values of the sectorial total of the restrictions matrix provided by the interviewees.

As a complement of the analysis by sectors, another can be briefly made regarding the dimension of segregation in

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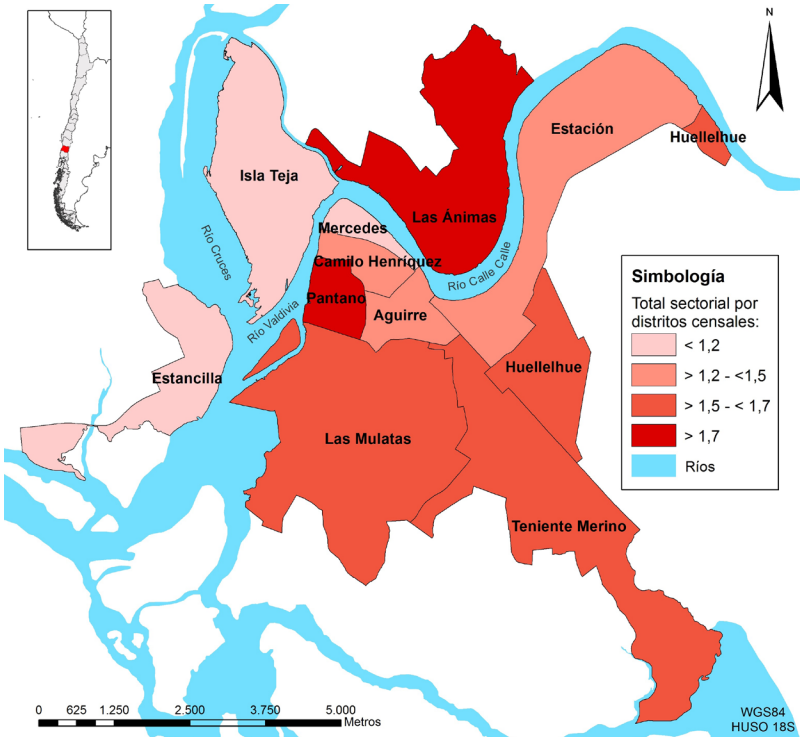

Figure 6. Total segregation by sectors Source: Own preparation

Valdivia. In this sense, the price of housing, socioeconomic diversity, and environmental risk stand out as its main exponents (Table 1). With regard to the former, this is the greatest limiting factor to have a home in Valdivia, considering the limited supply and the high demand. Aside from this, the investment required to improve land conditions to be able to build, increases the end price, added to the existing speculation and added value. Although the State has prioritized access to housing as a symbol of overcoming poverty, reducing it as the years have gone by, it does not necessarily mean that the quality of dwellings and the ways of life of the working classes have been resolved. On the contrary, the way the State has given land and homes responds to *urban enterprise* strategies and policies to encourage the valuation of certain pieces of land, generating disparities in the allocation of resources and triggering segregation processes (Alvarado, 2019).

In the case of socioeconomic diversity, this is related to the previous concept, considering that land segmented into prices links access to housing with the capacity to pay or take on debt (Sabatini, 2000; Abramo, 2012). The result is a conformation of different neighborhoods starting from homogenous social stratums, with the resulting socio-spatial polarization. This would end up being the visible face of the market logics that operate on the land and organize the city. Regarding environmental risk, the third most restrictive dimension, it is linked to the fact that Valdivia is built on marshland, which generates an obstacle when it comes to investing in the city. There are several areas where there is greater risk, those closer to the marshes being the most sensitive ones. There are other dimensions, with a lesser weight, like security, with the districts of Las Mulatas and Las Ánimas the most dangerous. In the case of dwelling materiality and green areas, these are not so restrictive, considering that the latter correspond to a classic trait of Valdivia, although having said this, there still are neighborhoods with limiting factors in this dimension. Finally, the labor informality is not that visible. It is seen more on the peripheries or in industrial areas, where it has not been perceived as a greatly important dimension.

IV. DISCUSSION

The case study presented shows similarities with the perspective of Chichevsky (2000) or Garín et al. (2009), as spatial segregation would be formed from a physical point of view. The spread, in recent decades, of *urban fragments* for the population with greater resources in areas like Isla Teja or Estancilla is a

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reflection of this. Consequently, the increase in land value that accompanies the higher added value of these sectors would have an effect on a segregation of the population with fewer resources, just as Torres (2013) indicates. In this way, the case of Valdivia, where the price of housing is the main segregating element, would be linked to studies like those of Saraví (2008), who also highlight this element. The methodological approach made has allowed more clearly highlighting symbolic aspects of segregation that are not always evident in more quantitative approaches (Ruiz-Tagle & López-Morales, 2014).

In this sense, the case of Valdivia, which went from being a "lethargic" city within the Chilean system (Borsdorf, Sánchez & Marchant, 2009) to a regional capital with an important real-estate dynamism, reflects that when there is an urbanistic effervescence and limited or non-existent public regulation, the result is a rampant spatial segregation (Fuster, 2016). In this way, the results obtained leave Valdivia closer to the perspectives of López-Morales (2015) or Ruiz-Tagle than those of Sabatini et al. (2009). Although, in this case, the size of the city could lead to thinking about other results, which they seem to reproduce, on a smaller scale, the same logics of Santiago. In this cocktail, the subsidized housing policy, just like in other cases analyzed (Azócar et al, 2008; Garín et al, 2009) would act to accentuate differences, more than to reduce segregation. Just like in other cases (Cattaneo, 2011), the real-estate sector here takes on a central role in the development and growth of urban spaces, modeling the production of the city through an *urban enterprise* model (Harvey, 2007), which is replicated at a different scale in the cases with the most literature.

V. CONCLUSIONS

The case study of Valdivia shows a growth that has been occurring in a way where sectors like Estancilla, Isla Teja and Huellehue hold most of the population with greater purchasing power. On the other hand, districts like Las Ánimas or the peripheries of Las Mulatas are working class neighborhoods that house the most vulnerable population, generating focal points or segments in the urban network that begin to be stigmatized or classified by socioeconomic status and level, which are recognizable both in physical and symbolic patterns. The way Valdivia grows is mainly due to high-rise densification projects alongside lotting on the urban periphery, being the type of "compact and diffuse" city that Sanabria and Ramirez (2017) or Abramo (2012) mention, that would be taking place in Valdivia, where the downtown areas begin to be ever more densified, while those outside this perimeter and towards the periphery gradually spread. The new role of the city as the administrative capital, its tradition as a center for higher education and the growing domestic and international tourism would be the drivers behind this phenomenon.

The lack of an updated PRC, some shortcomings in terms of availability and distribution of services, added to public and private plans that are not effectively coordinated, produce a city that is organized by who can invest more and where, with the private sector having the greatest gains in this regard, regulating and setting the housing prices. The result is a difference in the distribution and typologies of building permits there are, which is later reflected in the mentioned socio-spatial segregation. Therefore, this research has allowed making new contributions about urban dynamics in intermediate cities, opening up new topics for research which could be developed by reviewing other case studies.

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Recibido: 15-07-2020
Aceptado: 06-11-2020

RESISTANCE TO GARBAGE AND DYNAMICS OF TERRITORIALIZATION THROUGH THE USE OF EXPOSED WRITING[1]

RESISTENCIA A LA BASURA Y DINÁMICAS DE TERRITORIALIZACIÓN A TRAVÉS DEL USO DE LA ESCRITURA EXPUESTA

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REVISTA URBANO Nº 42 / NOVIEMBRE 2020 - ABRIL 2021
PÁG. 44 - 55
ISSN 0717 - 3997 / 0718 - 3607

1 This work was carried out within the ENLACE project (ENL 020/19), financed by the Vice-Rectory of Research and Development (VID) of the University of Chile.

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Este texto ofrece una caracterización empírica de una dinámica de resistencia a la presencia de basura en el espacio público y a la contaminación observable actualmente en un barrio pericentral de la ciudad de Santiago de Chile. El foco de análisis está puesto en las inscripciones gráficas, en el entendido de que, a través de ellas, los habitantes enfrentan el problema indicado activando nuevas dinámicas de territorialización y generando nuevas formas de dar inteligibilidad al barrio y a los sujetos que lo habitan. La información empleada fue generada mediante un procedimiento de catastro sistemático de las inscripciones gráficas del barrio, su registro fotográfico y georreferenciación, para hacer viable un análisis pragmático, tanto de su contenido como de su emplazamiento, con base en los conceptos de la antropología de las escrituras urbanas expuestas. El artículo entrega una comprensión sistemática de la relevancia de prácticas, usualmente banalizadas, mediante las cuales los habitantes despliegan formas de resistencia a la desposesión territorial y epistémica que afecta a los territorios del capitalismo urbano actual.

Palabras clave: residuos urbanos, escritura urbana expuesta, resistencia a la desposesión, territorialización.

This text presents an empirical characterization of a resistance dynamic to the presence of garbage in the public space and the contamination currently seen in a peri-central neighborhood of Santiago de Chile. The focus of the analysis is placed on the street writing, understanding that the inhabitants, through these, face this problem, activating new dynamics of territorialization and generating new ways of providing intelligibility to the neighborhood and to the subjects living there. The information was generated through a systemic listing of the neighborhood's street writing, its photographic record and geo-referencing, to make a pragmatic analysis viable, both of its content and its location, based on the anthropological concepts of the exposed urban writing. The article provides a systematic understanding of the relevance of practices, usually trivialized, by which inhabitants display means of resistance to territorial and epistemic dispossession that affect the territories of the current urban capitalism.

Keywords: urban waste, exposed urban writings, resistance to dispossession, territorialization

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I. INTRODUCTION

Urban studies have made great strides in highlighting the way in which neoliberalization has contributed to aggravating and diversifying urban dispossession processes. Particularly in Chile, contemporary studies have allowed addressing urban dispossession processes associated to gentrification (Janoschka, 2016), socioenvironmental conflicts caused by accelerated urbanization processes (Hidalgo et al. 2016) or the repercussions of the widespread application of the social housing policy (Jiménez, 2015), among others.

Under this scenario, the experience of those affected by these processes has been relegated to the background. We do not know the way dispossession processes change spatial practices either, or how they affect the intelligibility of the territory or if they even trigger new forms of territorialization (Del Romer, 2018; Haesbaert, 2013), at neighborhood or urban levels.

This research looks to contribute towards reducing this deficit by addressing the last aspect mentioned. Our hypothesis is that the forms said writings take, will show the action modalities on garbage and on the territory, but will also suggest ways of conceiving the subjects who live in this territory, expressing action modalities about this. Our goal is to characterize the way in which the use of exposed urban writing forms constitutes a tool to face the problem of the generation and accumulation of trash in a neighborhood context and, by doing so, trigger a dynamic of territorialization. We pursue this goal from a quite unconventional conceptual perspective in domestic territorial studies, the anthropology of exposed urban writing.

Studies about garbage in Chile are few and far between and have focused on the management of illegal solid waste landfills and their impact on the operation of the Metropolitan Area of Santiago (Asenjo-Muñoz, 2013), particularly in the transportation, collection and final disposal of the waste (Lerda & Sabatini, 1996; MIDEPLAN, 1996). Recent studies have sought to survey small dumps, accounting for their spatial location (Morales, 2016). Other research projects include in their study the topics of environmental conflict (Aliste & Stamm, 2016), sustainability (Reyes, 2004), the right to the city (Sabatini & Wormald, 2004) or the forms of urban segregation (Saavedra, 2017). In fact, Saavedra (2017, p.44) in her study about waste management and its consequences in terms of segregation, asked about "the social and spatial effects of the locational coincidence of dumps and the habitational units provided by housing subsidies" (Saavedra 2017: 44). The focus of the author's argument lies in the consequences of the application of the principle of subsidiarity, both at the level of housing policies and of urban waste management. Starting from this diagnosis, which is both geographical and institutional, our text looks to account for the level of the agency, addressing in a particular way how the territories' players face this institutional and geographic correlation. Along this same line of argument, the text of Sabatini & Wormald (2014), constitutes a starting point to understand that this agency capacity, manifested in exposed urban writings, can be understood as a form of "political-distributive dispute" (Sabatini & Wormald, 2004,p. 83) and daily resistance, where the autonomy of the inhabitants of poor neighborhoods is manifested.

The approach set out in this article looks to contribute to the academic debate, linking the problem of garbage with other vectors of sense, like infra-politics, the means of daily resistance to dispossession and the relevance of daily cultural practices in the dynamics of territorialization. It does not intend on being a representative study of the national situation, but aspires to provide analytical keys that transcend the specific case and serve to understand similar situations and analog micro-practices to the use of exposed urban writing.

II. THEORETICAL FRAMEWORK

Resistance to dispossession: territory and intelligibility

In the context of current capitalism, the production of added value requires the permanent generation of new urban geographies of displacement and dispossession (Janoschka, 2016). In the studies on accumulation by dispossession, the material, economic and geographical effect that different forms of expropriation and eviction have, has been underlined. But dispossession also involves "a problem of subjective and epistemic violence" (Butler & Athanasiou 2017, p. 18). In fact, the work done by Janoschka (2016) is emphatic in showing the relevance of symbolic, and even psychological aspects, involved in dispossession processes.

The garbage issue can be understood as key in dispossession in the means that it involves, first of all, the differential structuring of the city, generating territories that are prone to garbage accumulation found in the areas where the most precarious population lives; second, differential management of the municipal and communal resources and action capabilities, using those which keep some sectors of the commune clean while keeping others dirty; third, the stigmatization of the inhabitants who live in territories with garbage, who are seen as beings prone to living in spoiled, unhygienic conditions and; fourth, the activation of subjective self-understanding dynamics related to the aforementioned stigmatization.

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Any practice of resistance that seeks to oppose these forms of dispossession will be linked to the territory and will mobilize material, intersubjective and cognitive elements, on a diversity of scales. Under this understanding, it can be assumed that any practice of resistance has an aspect of territorialization (Haesbaert, 2013). But it is possible that this resistance is not evident at first glance, as usually it considers discrete practices, albeit no less powerful and activating (Zibechi, 2008). Said in other words, resistance to dispossession usually adopts a form of "infrapolitics" (Scott, 2004).

In this research we state that the exposed written signs constitute practices of resistance. We start from the notion of "exposed urban writing" developed by Fraenkel (2008, 2017), who includes in this, a "set of writings like political slogans, tags, obscene graffiti or those of love, marketing posters that adorn our cities and cohabit with the more solemn graphical productions" (Fraenkel, 2008, p. 158), but we avoid only referring to interventions that have a legible content (texts), as well as excluding mural, mosaic or similar interventions (which lead us to interchangeably using the notions of writing and sign). Exposed urban writings make relevant contents and issues clear to a given group. They look to be observed or read by someone, to generate a knock-on-effect on their readers and observers, composing, in this way, the informational ecology of the places (Denis & Pointille, 2009).

In the Chilean case, some authors have explored the function of exposed urban writing in certain settings. The political aspect stands out, particularly in the work of Araya (2010), who has shown how the writing allows condensing senses and channeling a rebellious action to the political regime, particularly the dictatorial, calling on the passersby. The ways in which written signs shape the political and neighborhood identity (Cortes, 2016) and take part in the production of the place (Campos, 2009), have also been addressed. In a different tone, Campos (2014) has explored the way these writings have sought to challenge their readers to ask for help or to coordinate the action of reconstruction, in situations of disasters and catastrophes.

What is interesting here is to explore the way in which exposed urban writings contribute towards facing the problem of garbage and, on doing so, generate a form of territorialization. As Haesbaert (2013) says, the territory "is always linked to power and the control of social processes". But the "appropriation can be given in multiple and varied ways (…) it is never absolute, but rather historic and, therefore, open to what's going on and (…) must be produced permanently through the generation of markings and symbolizations (Campos & Soto 2016, p. 76). From this perspective, territorialization emerges as a process of material and symbolic appropriation of the space by which individuals and groups resignify the territory through their practices, inscribing their identities and senses of belonging and developing an emotive-affective relationship with the surroundings (Porto Gonçalves, 2001).

We are authors of our territory, so we inscribe on it using our tools and our real capacity of action. Even the most trivial practices are potential producers of territory and we must consider them to see how this takes place (Musset, 2015). For this reason, we feel that both elements, written signs and territory, maintain a link that is worth exploring, in the means that, as Raffestin (1986) sets out, the territory is nothing other than the result of an unfinished process by which a human group records in the space, the cultural signs that characterize it. This is what the author calls, "territorial ecogenesis" .

III. CASE STUDY

The Santiago neighborhood is in the commune of Estación Central, in the pericenter of the city of Santiago. The residential occupation of this commune was originally linked to land occupation and the construction of social housing units, as well as to activities linked to cargo and passenger transportation, developing discontinuous urban structures with heterogenous morphologies (Municipality of Estación Central, 2017). The commune houses, in the southern sector, emblematic "poblaciones", the Chilean name for working-class neighborhoods, like Villa Francia, Los Nogales and Bonilla. Among these is the Santiago neighborhood, whose boundaries can be seen in Figure 1.

According to information from the 2017 Census, 5,442 people live in the Santiago 'población, in 1,419 dwellings, with a vulnerable home index of 65% (INE, 2017). The urban structure is mainly formed by narrow passageways. There are green areas with different degrees of quality, among which some have no paths, no plan and lack infrastructure, but are located close to the dwellings. According to the council, among the main problems affecting the sector is garbage: "The neighbors mention the lack of cleanliness in the sector as an important problem, along with the generation of small-dumps" (Municipality of Estación Central, 2017, p. 254).

The garbage problem in the Santiago población is evident onsite. It is possible to find waste piled up on road junctions like Ferrocarril and Manuel Chacón or Calle 2 and Guillermo Franke, just to give a few examples. We must consider that governmental institutionality defines micro-dumps as "… all those sites with a surface

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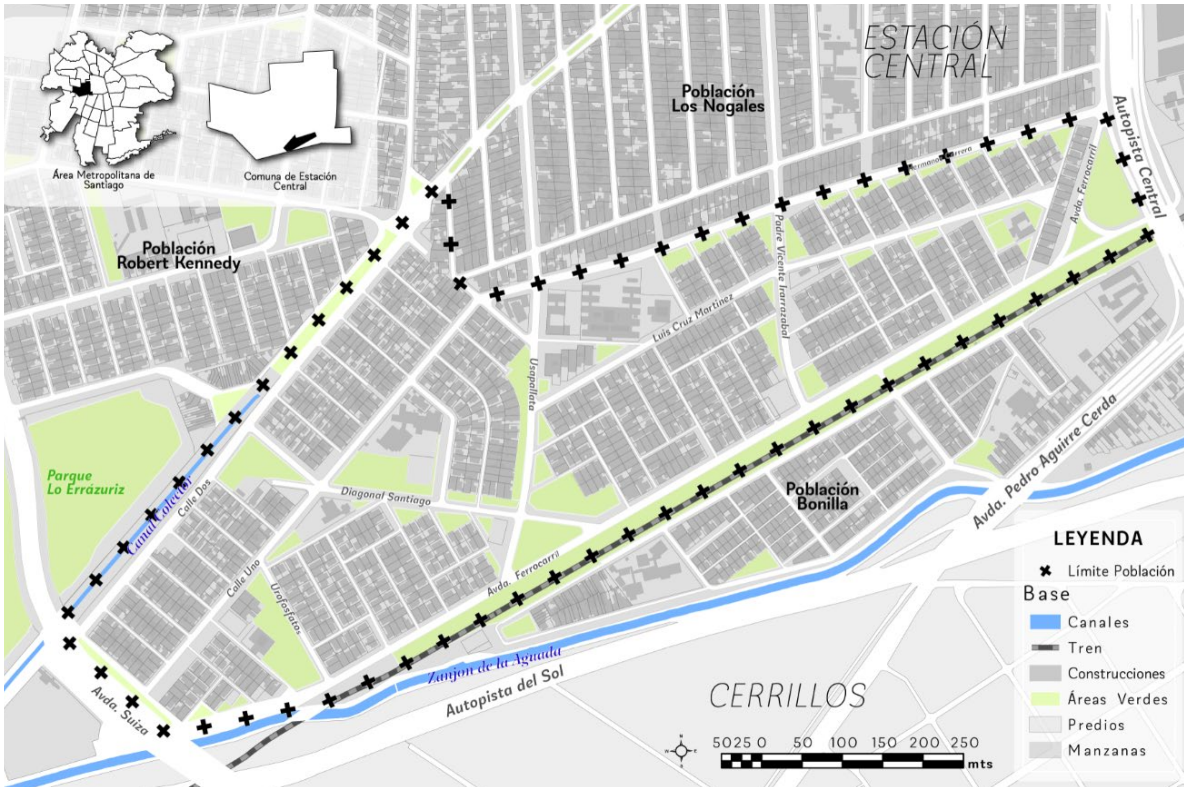

Figure 1. Boundaries of the case study: Santiago "Población", commune of Estación Central, city of Santiago. Source: Own preparation

Figure 2. Small-dump at the intersection of Calle 2 and Guillermo Franke, in the Santiago población (22/09/2019). Source: Own preparation

area of less than a hectare, where garbage is regularly or eventually dumped" (MIDEPLAN, 1996). Figure N°2 shows a small-dump that is found close to homes and playgrounds.

The National Environmental Survey (Ministry of Environment, 2018) shows that garbage and dirt on the streets is the second most commonly mentioned problem for the country's population, with 20.7%. In its breakdown by socioeconomic level, the issue appears for 13% among the ABC1 population, while 24% for the E stratum, which suggests that this is a problem that mainly affects working-class sectors.

On the other hand, Morales (2016) made a survey of the small-dumps of the Metropolitan Region, indicating that this considers 1,013 and not 700 as the health authority stated. His study also concludes that the sector of the city which is most affected is the periphery, excluding the high-wage cone, and that micro-dumps are found on the periphery areas, according to the definition coined by Lynch (1960). Our case study is close to one of the 6 areas with the highest concentration of small-dumps per hectare in the entire region.

IV. METHODOLOGY

The choice of the case of the Santiago población was based on the principles set out by Zussman (2004), which do not aim at generating a form of representativity, but rather at profiling a clear analysis perspective that allows accurately reflecting some theoretically relevant elements (cit. in Auyero, 2007). The information production procedure involved three essential operations: a) onsite survey of all the exposed writing of the sector; b) photographic record of each one of the writings identified and; c) generation of analytical maps based on the material of the survey.

The survey was done in three days of work. The first was dedicated to preparation and logistics, making a trip around the población. This was followed by two work days performed by one of the authors of this article and an assistant, on September 4th and 5th, 2019. The first day involved the creation of routes and recording protocols. While on days 2 and 3, each street and passageway were covered, and each written sign found was recorded, photographed and geo-referenced, using mobile phones and the Cartodroid freeware. In addition, sketches and notes were taken onsite from conversations with the neighbors.

Likewise, the analysis procedure implied: a) thematic analysis of the content of all the exposed writings (Riessman, 2008); b) classification of the texts into emerging categories, following the perspective of the grounded theory (Strass & Corbin, 2002); c) material analysis of the exposed writings as "written objects" (Fraenkel, 2017); d) analysis of the graphical ecologies present in the neighborhood following the theoretical keys of the anthropology of exposed urban writing, including direct observation and interviews with inhabitants (Denis & Pontille, 2009).

V. RESULTS

Survey of exposed written signs

In the survey made, we identified 407 exposed writings, which were georeferenced and classified following a thematic analysis of their content (Riessman, 2008). Among these there are 12 categories, one that groups 12 signs referring to the environmental issue. The textual contents of these are recorded in Table 1. Within this category, 8 signs are explicitly linked to the problem of garbage.

After the thematic analysis, we proceeded to a material analysis of the exposed writing, as written objects (Fraenkel, 2017). This allowed detecting that the exposed writings of the environmental category can be split into those of simple execution and those whose preparation implies more work.

The first correspond to signs that, at first glance, seem to have been made with a degree of improvisation, using materials like zinc, wood or recycled materials. In these signs, free-hand is seen, with simple edges and without serifs. Its text is written in imperative form, with the most common being, "Don't dump garbage". They lack individual or collective signatures. The second group, the more elaborated signs, correspond to different expressions, with a heterogeneous format and support, whose preparation implies a greater degree of sophistication and detail, given by their technical or artistic treatment. In this group, we find banners, murals, posters and screen printing. The supports have different sizes, ranging from letter sized printed sheets, to large murals that fill entire walls. Their strokes are varied and in some cases manual or electrical tools are involved, like printers or screen-printing frames.

What is interesting in this fledgling classification is that, on positioning their location on a map of the población, both manifestations evidence a differentiated territorial display. That is, the concentration of one typology is seen on the east side of the población, while the other is concentrated in the west sector.

Ecology of the written signs and their pragmatic analysis

In the territory's west sector, those more complex written signs and of a more elaborated graphical and textual context are more prevalent, while in the east sector, those with a simple

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Sign	Text
1	Days the garbage truck passes: monday wed(nesday))
2	No more garbage: "awareness comes from the neighborhood". today like yesterday. let's build a worthy life. los caminantes
3	United for our dreams of today. fp. los caminantes
4	Neighbors: Here we're building this garden for the entire neighborhood. Take care of what's ours and let's work together for a better neighborhood. Taller Sembrando Dignidad.
5	This garden is proof that when neighbors come together, Great Things can be done. Let's take care of it!
6	The población is organizing against the contamination problem. informante callejero.
7	Nuestro mundo creche – nursery.
8	Municipality of estación central. don't dump garbage or debris. fine 3 utm. ornamentation and cleaning direction. uv 41-1
9	Don't dump garbage
10	(D)on't dump. i'm recoring you. (g)arbage
11	Don't dump garbage
12	Don't dump garbage. no more. no more. no more.

Table 1. Textual content of each sign belonging to "environmental" category. Source: Own preparation.

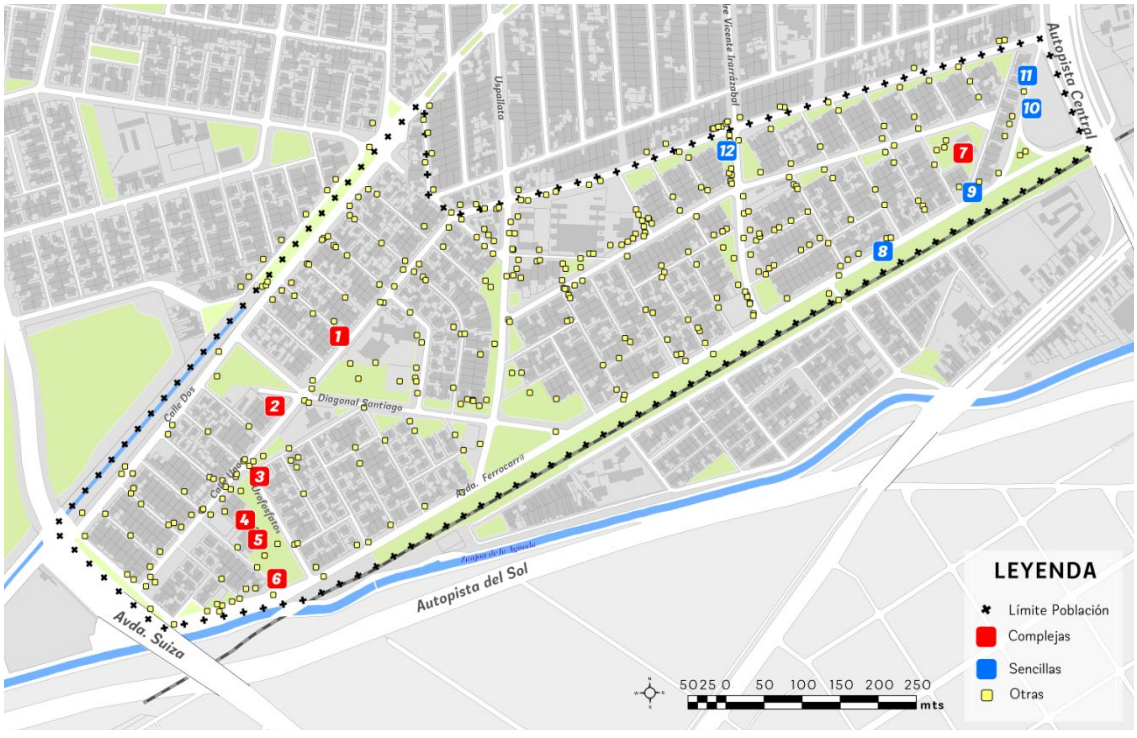

Figure 3. Map with the territorial distribution of the written signs in the Santiago población. Source: Own preparation.

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Figure 4 Image of each one of the analyzed written signs. Source: Own preparation

execution and with less elaborate textual content dominate. As can be seen in Figure N°3, the signs of the east sector are almost all located on important roads, where a relevant number of vehicles transit and that have large sidewalks in a poor condition, where it must also added, in the case of Ferrocarril Avenue, that one of the sidewalks does not have a defined use and, therefore, does not have inhabitants for its visual control and occupation.

In this sector, the writing adopts imperatives and appears almost like a road sign, precisely because the issue being faced, as the sector's inhabitants told us, is that of the litter dumped there by people in their cars who, taking advantage of the little visual control, litter on the sidewalks, generating small-dumps. Here the texts are simple and direct. The text size must allow reading from a distance and, also, the location of the writing must provide the text with visibility. Consequently, there are writings that look to act quickly and effectively on outsiders so that they do not litter there, just as the conversations held with the inhabitants confirm.

Meanwhile, the west sector's written signs are located at places where vehicles stop, queue or at least transit slowly. Unlike the east sector's signs, flow does not dominate here and great speed even less so. This spatial characteristic is reinforced by the signs, which are accompanied by more abundant text and which, because of this, require greater attention and time from their readers. The texts adopt a more declarative tone, stating what characterizes those who live there. The target of these texts is the community itself.

On observing in detail, the distribution and territorial location of the writings, as well as their material characteristics, we can see that the aforementioned general pattern has nuances and exceptions, as in the east sector, sign number 7 is found,

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which corresponds to a highly elaborated mosaic (Figure 4), an exception to the indicated pattern, while in the west sectors, signs 1 and 6 are found, which have a more restrictive text and an eminently informative role, which also nuances the described pattern.

However, it is necessary to go into more depth in the material and situational characteristics of each sign. Number 7, the mosaic, is located on a perimeter wall of a nursery, surrounded by a green sector. This accounts for a location in line with the permanence and congregation described for the signs of the west sector, very similar to what is seen for signs 2 and 3. These share the greatest level of preparation and largest sizes of all the signs analyzed, as well as an allegoric and celebratory functionality of the community, that is reinforced by cheerful colors and motives. Although there is a difference in that signs 2 and 3 are murals whose author is indicated in the graphics by the reference to the group that prepared them: "Los Caminantes or The Walkers". The written signs in these three cases (2, 3 and 7), look to face the problem of garbage describing the community, presenting a cheerful colorful version of it, transmitting an uplifting message about the virtues of ecology, hygiene and care for the environment. The feedback received in conversations with inhabitants and onsite observations suggest that this goal of action on the community itself is confirmed by the recipients of the written signs.

Sign number 6 is a screen print that shows a high level of preparation. Its text is accompanied by an image of a group of people of different ages that are found on the base, made in one stroke with no filling, which can be interpreted as different forms of contamination, garbage and industries. The screen print is in a good condition, and the whole text can be seen; however, it has signs of aging and a few scratches. It is located on the metal door of a hut, along with remains of other screen prints and printouts whose texts are no longer legible. On being a screen print, it is presumed that it could have been one of many that were placed in the sector. The screen print alludes to the problem of contamination in its entirety; nevertheless, through the drawing it alludes to the problem of garbage in public spaces.

Meanwhile, sign 1 corresponds to a printed sheet whose text is informative, as it indicates the days the garbage collection service passes by, and its placing is on a public street lamppost, on the corner of one of the tight passageways. The sign tries to face the garbage issue, informing the community of readers, reminding which days the garbage truck passes by and when, as a result, garbage can be taken out from each home and placed on the street.

Within the west sector, signs 4 and 5 have an important trait on being part of a material intervention in the neighborhood setting, which is the construction of community gardens. They also have longer more developed texts that outline the importance of the garden for the community. The written signs in both cases face the garbage issue, labeling a place, marking out and inviting its protection by the community due to the environmental benefits related to its conservation and care.

Finally, returning to the east sector and complementing what has already been said, signs 8, 9, 10, 11 and 12 are more simply made. In three of them (9, 11 and 12), the text included is, "don't dump garbage". In sign number 10, the text "don't dump garbage" is accompanied by another, less visible message, "I'm recoring you" (sic). In sign number 9, the text says "don't dump garbage or debris, fine 3 UTM". Beyond the textual and material variations, very important in an anthropological analysis, we want to highlight, from a pragmatic perspective, that these signs match up, on facing the garbage issue through direct action, looking to influence the behavior of the readers, converting the inhabitant into a subject capable of organizing and acting on their territory against outsiders. A summary of what is indicated in this section can be found in Table 2.

VI. DISCUSSION

In terms of the territorialization dynamics, what this distinction between the east and west sector leaves clear, is that the former constitutes a boundary line, a border territory where the writing aims to act on players outside the community, trying to intervene on their behavior, while the latter is a space of community construction, a common territory where the community acts upon itself, states what it does and what it wants to do and, in addition, generates graphical content that fosters this intention.

Through the written signs, the subjects resist the dispossession process that implies the systematic presence and accumulation of garbage in the territory, turning this into a relevant expression of infra-politics (Scott, 2004). They resist because they seek to intervene the cycle of production, circulation and accumulation of garbage and, at the same time, counteract the subjective and epistemic process involved, that points them out as subjects that deserve to live with garbage and passively accept its presence and persistence.

In this sense, the written signs surveyed in the neighborhood account for a behavior that opposes and resists the dispossession involved in the production and accumulation of garbage. The daily presence of these signs shows from their articulation, the spatial characteristics and the relational dynamics of the neighborhood (informational ecology of the place), but also suggest that they contribute to shaping the territory, as their texts, materiality and placements indicate that they look to act upon their observers, generating persuasive effects and encouraging certain types of behaviors: reinforcing community spatial practices and care for the territory; discouraging spatial practices that degrade the neighborhood

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Sign	Intended action
1	Inform the community. Provide knowledge that guides action.
2	Reinforce the community. Positioning of values that motivate them. Aesthetic intervention on the environment and morals of its observers, who are the neighborhood's inhabitants.
3	Reinforce the community. Positioning of values that motivate them. Aesthetic intervention on the environment and morals on its observers, who are the neighborhood's inhabitants.
4	Labeling of a garden. Statement of its relevance for the community. Production and conservation of a common green area and production of the community that sustains it.
5	Labeling of a garden. Statement of its relevance for the community. Production and conservation of a common green area and production of the community that sustains it
6	Reinforce the community. Invitation to the inhabitants themselves.
7	Reinforce the community. Positioning of values that motivate them. Aesthetic intervention on the environment and morals on its observers, who are the neighborhood's inhabitants.
8	Imperative. Looks to act on an external agent and avoid that they litter.
9	Imperative. Looks to act on an external agent and avoid that they litter.
10	Imperative. Looks to act on an external agent and avoid that they litter.
11	Imperative. Looks to act on an external agent and avoid that they litter.
12	Imperative. Looks to act on an external agent and avoid that they litter.

Table 2. Textual content of each inscription. Source: Own preparation

and stigmatize its inhabitants. Said in other words, they look to generate another emotional-affective relationship with the place. We consider that an epistemic effect is at play here, as these effects also imply repercussions at a level of the understanding of the territory and the self-understanding of the subjects.

Also, through the modalities in which these written signs are materialized, the modalities used to act on the target subjects of the writing, are clear: dissuading external players from littering in the neighborhood, using whatever they have at hand for this, inviting inhabitants to increase the environmental care activities of the neighborhood and to reinforce the community that inhabits the territory, through well looked after signs, which require significant production.

VII. CONCLUSIONS

The current urban neoliberalism of Chile does not comprise abstract forces nor is it articulated in elusive geographical organization for the subjects. On the contrary, the structural dynamics of neoliberalism adopt an experiential complexion, giving form to the territories and to daily experiences. In this research, we state that the garbage issue is a matter of dispossession in the means that the presence, persistence and accumulation of waste is not a random and contingent situation that affects the neighborhood considered, but rather a persistent dynamic that involves structural management aspects, but also subjective and symbolic ones.

The written signs show the active role of the inhabitants and that there are modes of action, apparently insignificant, where a deep issue is crystalized. That is to say, "infrapolitical" modalities which are material illustrations of this transformative positioning of the subjects. Furthermore, the written signs are not the result of an automatism, nor a purely contingent effect. They are the materialization of a self-understanding of the subjects that live there. The crystallization of needs, aspirations and horizons of action, modeled based on the availability of material resources and the use of cognitive abilities. They are a concrete way by which the subjects activate their action capabilities, seek to recover control of their neighborhood and of the social representation of their own identity. Paying attention to them is a way of recognizing the real capacities of agency of the subjects and to deactivate the processes of stigmatization that are often spread unconsciously.

Starting from this analysis it becomes possible to reflect in a more complex way about the modes of affectation of garbage, as well as about the modalities of territorialization linked to this and the variety of modes of resistance that the inhabitants

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can use to face it. The presence of garbage in the territory is related to the level of control the inhabitants have over it. The written sign aimed at acting on the presence of garbage, of any shape or form, is an intervention that indicates that a means of control over the different territory is pursued, that the presence of garbage is opposed and that organizing and managing the territory in another way is sought.

The results presented here do not intend to be representative of the varied forms of dispossession that currently affect the territories of the country, but that seek to: i) account for the relevance of exposed writings as tools to face the garbage issue and as a practice that generates a new form of territorialization; ii) show the pertinence and plausibility of an approach that pays attention to micro-practices of resistance that form part of the infrapolitics of sectors affected by these forms of dispossession. In this sense, the proposed approach can be extrapolated to the analysis of another type of practices and micro-practices by which the subjects "write" their territories. A line of exploration in this perspective and that extrapolates the type of analysis made here, can be put forward as the step of the concern for the meaning of places and the syntax of spaces, towards the pragmatic of the territories.

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REVISTA URBANO Nº 42 / NOVIEMBRE 2020 - ABRIL 2021
PÁG. 44 - 55
ISSN 0717 - 3997 / 0718 - 3607

Recibido: 15-07-2020
Aceptado: 18-11-2020

SOCIO-SPACIAL HABITUS IN COASTAL COMMUNITIES UNDER THE NEOLIBERAL CONTEXT

THE CASE OF EL MORRO COVE, TALCAHUANO[1]

HABITUS SOCIO-ESPACIAL EN COMUNIDADES COSTERAS BAJO EL CONTEXTO NEOLIBERAL
EL CASO DE CALETA EL MORRO DE TALCAHUANO

VALENTINA SOLEDAD GONZÁLEZ ROJAS 2
ROSA MARÍA GUERRERO VALDEBENITO 3

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PÁG. 56 - 65
ISSN 0717 - 3997 / 0718 - 3607

1 This article was developed through the VRID Associative project 218.182.003-1.0: “Processes of adaptation, rearticulation and resistance, derived from the neoliberal modernization of Urban Coves of the Concepción Metropolitan Area, Biobio Region”. University of Concepción, Chile.

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DOI: https://doi.org/10.22320/07183607.2020.23.42.05

Las caletas constituyen asentamientos costeros marcados por su vocación productiva ligada a la actividad pesquero-artesanal. En ellas surgen formas específicas de habitar que dan lugar a prácticas socioespaciales que producen y reproducen el espacio y que, en este documento, se conciben como “habitus socio-espacial” (Giglia, 2012). Actualmente, estos asentamientos y comunidades se han visto amenazados por el avance homogeneizador de la expansión urbana neoliberal. El artículo describe las características del habitus socio-espacial de Caleta El Morro de Talcahuano y sus expresiones durante y después del tsunami de 2010. La metodología incorpora técnicas cualitativas como la entrevista, revisión de material de archivo fotográfico, y cuantitativas, como revisión de estadísticas e instrumentos de planificación territorial. El análisis constituye una síntesis cartográfica e histórica de las prácticas socio-espaciales de la caleta, sus nudos y potencialidades para la preservación del asentamiento y su cultura. Los resultados evidencian que la caleta se posiciona como una frontera dentro del espacio urbano, una heterotopía (Lefebvre, 2013), que resiste las amenazas naturales y al espacio abstracto, caracterizado este último por la urbanización de carácter global que amenaza al borde costero regional y nacional.

Palabras clave: espacio diferencial, habitar, habitus socio-espacial, neoliberalismo, caleta urbana.

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Coves are coastal settlements, marked by their productive vocation, linked to artisanal fishing. In them, specific forms of inhabiting appear that give rise to socio-spatial practices that produce and reproduce space and that in this document, we will call socio-spatial habitus (Giglia, 2012). Currently, these settlements and communities have been threatened by the homogenizing advance of neoliberal urban expansion. This article describes the characteristics of the socio-spatial habitus of El Morro Cove in Talcahuano and its expressions during and after the 2010 tsunami. The methodology incorporates qualitative techniques such as interviews and the revision of photographic archive material; and quantitative, such as a review of statistics and territorial planning instruments. The analysis is a cartographic and historical synthesis of the socio-spatial practices of the cove, its nodes and potentialities for the preservation of the settlement and its culture. The results show that the cove is positioned as a frontier within the urban space, a heterotopia (Lefebvre, 2013), which resists natural threats and abstract space, characterized by global urbanization that threatens the regional and national coastline.

Keywords: differential space, to inhabit, socio-spatial habitus, neoliberalism, urban cove.

Figure 1. Location of El Morro Cove. Source: Own preparation.

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I. INTRODUCTION

Current cities are characterized by the presence of progressive urbanization processes linked to neoliberal capitalist development (Harvey, 2012). In Latin America, this fact is characterized by the mixture between urban development models marked by the formal large-scale real-estate market, oriented towards middle- and upper-class groups; and informal working-class construction and appropriation processes, generally on the outskirts or fringes, defined by working-class groups with little or no access to the formal housing market. Such is the case of the fringes of Chilean coastal cities, where large property developments, generally focused on tourism (Hidalgo et al., 2016), and urban-port system complexes (Alarcón & Sandoval, 2016) cohabit with artisanal fishing settlements, popularly known as "caletas" or coves (Marcucci, 2014), which are characterized by a human scale and self-built economy, strongly linked to the artisanal extraction of marine resources (Orellana & Díaz, 2017). Both forms of urbanization and appropriation of the coastline coexist in a complex manner, generating expulsion, segregation and urban invisiblization processes (Guerrero & Alarcón, 2018; Hidalgo et al., 2016; Orellana y Díaz, 2016).

Artisanal fishing involves social practices, identities and the production of a local culture (McGoodwin, 2002; Gajardo & Ther, 2011), that is expressed by means of the construction, use and meaning of the coastal space, favoring a particular lifestyle. This lifestyle covers "phenomena like self-construction, the practices that organize and give sense to the domestic space, as well as the representations of the urban setting and reading of a map" (Giglia, 2012, p. 9). In addition, it incorporates their own knowledge that allows coastal communities to react to the demands imposed by the territory, through resistance or adaptation processes (Riffo & Pérez, 2016).

The unequal convergence, between industrial urban and artisanal forms, produces a threatening scenario over the latter due to the expansion of processes like the global scale industrial growth and neoliberal urban development (Harvey, 2012; Guerrero & Alarcón, 2018). These forces are characterized by a dialectic relationship between the values of use and change (Lefebvre, 2013), which are worsened on facing natural catastrophe scenarios and expose these communities to urban transformation and eradication processes that, apart from homogenizing the urban landscape, jeopardize the permanence and sustainability of alternative ways of life (Moussard, Carrasco, Aliste, Ther & Hidalgo,2013; Riffo & Pérez, 2016).

The Metropolitan Area of Concepción (AMC in Spanish) brings together seven coastal communes which, together, group a total of 33 artisanal fishing coves (SERNAPESCA, 2013). El Morro Cove, the case study analyzed in this work, is located in the commune of Talcahuano, very close to its urban downtown. This settlement emerged in 1912, as part of the spontaneous occupation of lands by fishing families who, taking advantage of its location on the coastline, progressively inhabited the space, setting it up from their needs and uses. Its population comprises extended families that have grown over four generations

(Moussard et al, 2013), marked by their ties with artisanal fishing that has allowed them to remain stable in the space.

This cove was one of the those most affected by the 2010 tsunami. After this, the settlement has been subject of diverse reconstruction and mitigation actions, which have caused tensions and mobilized the community. Currently, 173 people live in El Morro, 83 men and 90 women (INE, 2017).

This article analyzes the characteristics of the socio-spatial habitus of El Morro cove, its continuities and ruptures, facing the anthropic and natural threats that have changed the coastline in recent decades. The document focuses on two specific goals: a) describing the makeup of the socio-spatial habitus of the cove, and b) analyzing the action to face natural disasters and that of the state in this regard, specifically to face the 2010 tsunami. The hypothesis is that the socio-spatial habitus built by the community of the cove being studied, emerges as a frontier, a heterotopia (Lefebvre, 2013; Foucault, 1967), that resists natural and anthropic pressures, making possible the configuration of differential spaces that privilege modes of production and reproduction at a human scale, preserving the traditional identity and dynamics of the community.

II. THEORETICAL FRAMEWORK

Practices and socio-spatial habitus

The conceptual debate regarding living, demands the question about the space. Lefebvre (2013) introduced the spatial twist from his unitary theory of the space, taking as a base, the progress of urbanization in capitalist industrial societies. His decoding of the space indicates that the modes of production locate and develop their own spaces. The triad of the space (Lefebvre, 2013) comprises: a) the spatial practice, that covers production and reproduction, specific places and spatial groups typical of each social form and, that ensures the continuity of a community; b) the representations of the space, which are linked to production relations, to the order these impose and, in this way, to the knowledge, signs, codes, and frontal relations; and c) the spaces of representation, that express complex symbolisms linked to the clandestine and underground side of social life, but also to art, as a code of the spaces of representation (Lefebvre, 2013,p. 92). Ultimately, the triad defines the space as process and product. As process, it is a social construction that incorporates practices, actions and representations of the individuals and collectives that interact in the society. Its reinvention is constant and responds to the historic moment in which it is circumscribed (Baringo, 2013). As product, it gives rise to different ways of experiencing the space: a) the perceived space, defined by daily use, which produces and dominates it; b) the conceived space, defined by the prevailing representations and the institutional exercise (given by planners, urbanists and engineers); and c) the lived space, emerging from the spaces of representation, that are built by symbols and images, a dominated space that the subject wishes to change and transform (Lefebvre, 2013).

Spatial practice is the nucleus by which, people order, organize and dominate the space, based on daily reality, giving form to the perceived space (Lefebvre, 2013). This may be conscious, reflexive and even automatic and it constitutes an action that by repetition gives rise to specific ways of living in the space (Lefebvre, 2013; Giglia, 2012). Angela Giglia (2012), using Bourdieu's (1991)notion of habitus, defines these spatial practices as a form of socio-spatial habitus, understood as "knowledge incorporated" through the body, that represents, reproduces the space and its ways of living. The practices allow people to recognize their environment, organize it and themselves, making a system of reference regarding their surroundings. It involves the agency of the subject, who acts and moves in the space considering their needs and intentions. Thus, the socio-spatial habitus, along with the representations and the spaces of representations, favors the production and reproduction of the space and with it, a given form of living.

Producing the space in the neoliberal context: the differential space

Capitalism restates the historic role that communities and societies have played in the construction and development of what today we understand as city and its forms of living (Lefebvre, 2013, p. 107). The accumulation of capital results in the capitalist space par excellence or the *abstract space*. This is borne from the processes of capital accumulation that occur in the instrumentalization of the space as a result of the progressive separation of production processes. The representations of the space are structured as an instrument of domination, under the wings of technocrats, who use them in their favor for the implementation of a homogeneous city model that eliminates difference in the social space (Baringo, 2013; Lefebvre, 2013). Harvey (2012) contributes to this notion, mentioning that the traditional city has died as a result of unbridled capitalist development, "victim of its needs", the capital seeks new spaces for investment and growth. Lefebvre (2013) introduces an emerging concept that denotes the possibility of transformation of the abstract space, in a form of utopia, this is the *differential space*. Its makeup is the opposite of the abstract space and its appearance is nourished by the contradictions typical of capitalist society. Baringo (2013) describes the differential spaces by their revolutionary nature, characterizing them as that which favors and gives room to the expression of difference, through the reassociation of "the roles, elements and moments of social practice that the

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abstract space dissociates" (p. 129). Facing this, the author adds that: "these counter-spaces of difference, with their inherent contradictions and potential for conflict, also become spaces to face the efforts of homogenization by the spaces (abstracts) of domination" (Baringo, 2013, p.129). Lefebvre (2013) mentions that, by the analysis of the practices, it is possible to decipher the space. Also, through the configuration of the space, we can understand the processes of rationality there are after the construction of a settlement.

III. METHODOLOGY

The methodology adopted is a phenomenological approach that recognizes the voice of the territory's players as the carriers of the senses of living in the cove. Through a qualitative approach, it is sought to collect how the inhabitants, through diverse practices, have created a unique way of living and adapting to the changes in their daily coastal life. For this, qualitative techniques were used, like interviews with key members of the community (leaders and fishermen and women), ethnographies and observation in the territory, and a review of the historic records of the community**4**. This was complemented with a revision of the documentation of territorial planning programs on the coastline, from before and after the earthquake. This information collection process was made during the second semester of 2019. The organization and analysis of the information collected was articulated around the two specific goals of the study, resulting in: a) a characterization of spaces from a cartographic summary of the socio-spatial practices, made based on their recurrence and meaning; and b) the description of how inhabitants have deployed their practices of use and knowledge around the spaces after the 2010 tsunami, the intervention actions derived from this and what these have meant. Finally, an analysis and discussion of the results, and final reflections about these, are made.

IV. RESULTS

Maps of the socio-spatial habitus of El Morro cove

The cove is characterized on being a plain, which extends from the "El Morro" channel to its namesake hill that shelters it from the wind's action. Both spatial landmarks have been key in the structure and setup of the settlement which, due to natural catastrophes and by anthropic action have modified its morphology and layout on reiterated occasions.

The socio-spatial habitus is configured from the repetition of the spatial dynamics linked to the fishing trade. According to the narrative of the inhabitants, there are no spaces with a unique vocation, in this, different interactions take place that produce and reproduce local production relations, obviously on a human nature scale. However, in this mix of uses and practices, it is possible to see four different types of spaces.

A. **Residential space:** This is the place where the historic dwellings are located, which traditionally have been self-built considering the needs of the families. The dwellings are made from different materialities, but integrated to perform the shared fishing-related tasks, through informal passageways. Those who still conserve this construction signature are those closest to the hill, which survived the tsunami. The dwellings from the reconstruction process**5**, are mainly on concrete stilts built by the government

B. **Productive space:** These are the places where practices linked to the fishing trade, the extraction of algae and the disembarking of marine produce, like the jetty, are concentrated. They are also linked to the sale of processed products, like restaurants, mainly managed by women, who are also the ones dedicated to processing and selling local gastronomy. Marine produce and food are also informally sold close to the channel and the jetty. The fishermen's houses are also places, where processing and storage tasks of fishing resources, work to safeguard and repair the art of fishing, take place.

C. **Social and community space:** Most of the formal social activities today take place in the community center that, prior to the 2010 tsunami, was a storehouse. Here union, educational (to raise study levels in the community) and organizational activities of an informative, recreational and community nature are held. The jetty, square and coastline areas are also important spaces for sociability of a more informal nature.

D. **Cultural space:** The fishing trade provides sense to the cove's spaces. The distribution of roles by gender also marks the sense of living. The baiting, drying

4 Report developed by El Morro Neighborhood Group, which contains maps and historic information of the settlement.

5 Reconstruction Plan: Earthquake and Tsunami of February 27th 2010 and MINVU (Housing Ministry) Reconstruction Plan "Chile unido reconstruye mejor (Chile together builds back better)".

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Figure 2. Facilities and infrastructure of El Morro Cove. Source: Own preparation.
Figure 3. Residential space. Source: Own preparation.
Figure 4. Productive Space. Source: Own preparation.

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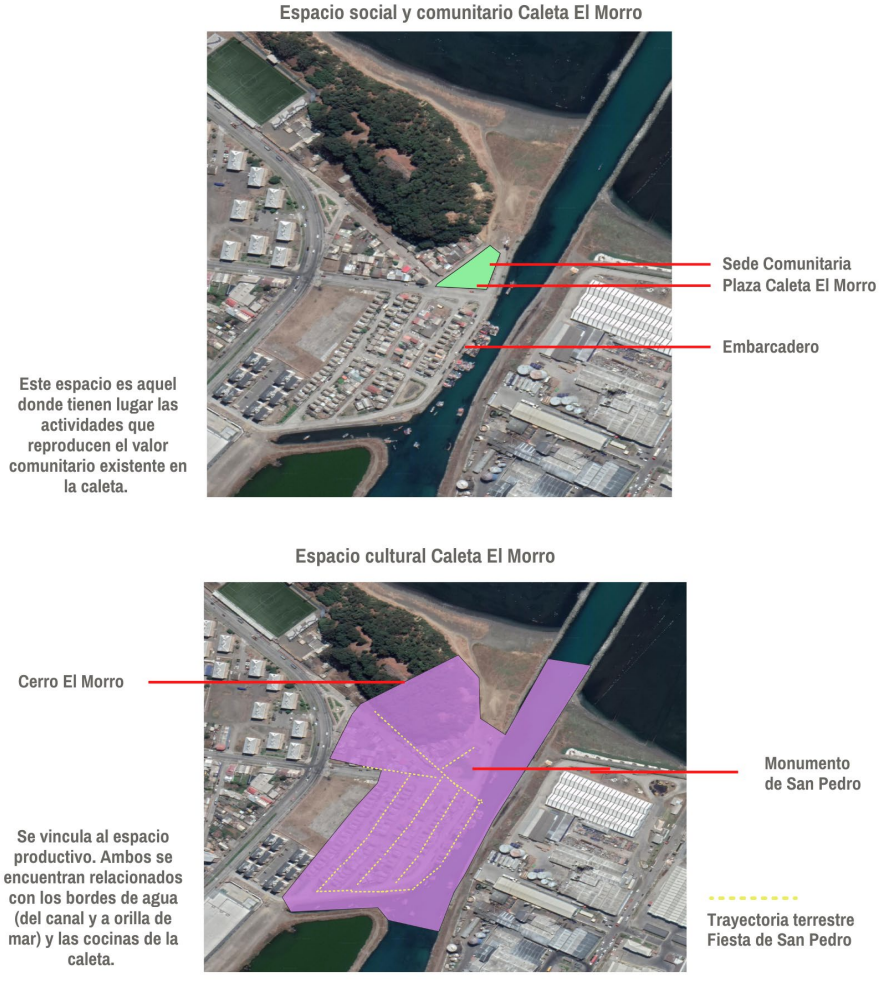

Figure 5. Social and community space. Source. Own preparation.
Figure 6. Cultural space. Source: Own preparation.

and net repair tasks, historically done by women, give the places their own sense. The fences of the dwellings are used to clean, repair and hang the nets. Before the tsunami, the space between the ground and the base of the houses was also used to smoke shellfish. Another key spatial element within this category is the El Morro hill. This landscape element constitutes a symbolic and historic space of diverse uses and meanings throughout the cove's history, being a space that is central to Morrina identity. The traditional celebrations of the fishermen, like the celebration of Saint Peter, sees the inhabitants come out in the cove, appropriating the public and private spaces. In this celebration, the community also openly receives visitors, preparing traditional food to share and presenting archive images that tell the history of the place. The boats are decorated and a procession takes place on land and sea.

The spaces described do not have a unique vocation, they are intertwined through the different socio-spatial practices. The fishing culture permeates most of the uses and meanings regarding the space, which range from the extractive to the construction of human relations among the settlement's inhabitants.

Tensions and transformations of the socio-spatial habitus derived from the tsunami

The socio-spatial habitus of the cove is built, unfolded and transformed on constantly facing natural and anthropic phenomena; it is both a product and process. In the case

Figure 7. Chronology of the El Morro Cove reconstruction process. Source: Project file.

study, natural disasters have been key in the configuration and reconfiguration of its identity and socio-spatial habitus. During the 2010 tsunami, in spite that local authorities advised to not evacuate the cove, the inhabitants developed a community evacuation plan (Moussard et al, 2013) towards El Morro hill. This hill, that adjoins the cove, has been the historic shelter of the inhabitants when threatened, either naturally or politically[6]. The community evacuation plan avoided loss of life and evidenced the presence of a culture about the risk associated to the space. The actions of the community were guided by their habitus and memory of the place. The community remained for four years on the hill, in emergency dwellings, resisting the eradication proposal.

The initial proposal of the government for the community's reconstruction was eradication, but this was rejected by the community. The basis behind the transfer due to risk had no consonance in a community that had always lived by the sea. The institutional proposal to rebuild the cove was also questioned as it did not adapt to the uses developed by the fishing families. For this reason, a proposal was suggested and defended that incorporated the vision and needs of the community in the design of the houses and the space.

The state proposal was a top down[7] planning model that did not consider the space lived and perceived by the subjects, but rather that installed a uniform habitability model. The cohesion of the community during the post-disaster reconstruction period was fundamental in the reconfiguration of their space, in the preservation of the socio-spatial habitus and their representative spaces. Its inhabitants and leaders supervised the construction process of the dwellings closely and even broke into them, inhabiting them prior to their official inauguration.

> "The houses had been finished for a year, but they wouldn't hand them over (…) with Don Alfonso we would come in to see if they leaked in winter. We started to complain about why they didn't give us the houses. Up until today, they haven't been handed over. We occupied them on a day just like today, May 21st, we've been in the houses for 5 years" (Cecilia, inhabitant of El Morro, Talcahuano).[8]

The result of the reconstruction process is an urbanized cove, integrated to the urban structure of Talcahuano, that respects the use and location of the settlement's traditional infrastructure and facilities. Likewise, the distribution of the dwellings is done respecting the proximity there was among families before the tsunami, which is relevant for the inhabitants of El Morro.

6 According to Decree N°121 of the Ministry of Education (2017), the El Morro Fort and Site of Remembrance of Talcahuano was declared as such by the Monuments Council, due to its historic and strategic importance (1777 and 1930). Once abandoned, the facilities were recovered by the Navy and intelligence services, as a torture center between 1973 and 1985.

7 The top down approach refers to a vertical planning model that places decision-making from a traditional point of view and where efficiency is the key value (Timarán, 2019).

8 Interview made on May 21st 2019 at El Morro Cove, Talcahuano

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Caleta El Morro de Talcahuano.
Año 2010.

Caleta El Morro de Talcahuano.
Año 2020.

Figure 8. Aerial view of El Morro Cove, 2010 and 2020. Source: Google Earth.

V. DISCUSSIONS

Socio-spatial habitus is built from the repetition of practices that produce and reproduce meanings, implicit rules and an order that distinguishes the settlement regarding the environment (Giglia, 2012). It operates as a practice that facilitates reproduction of the space, as well as the culture. As has been observed in the case study, artisanal fishing demands resources, organization and an individual and social daily deployment, this organizes the time, practices and spaces of the cove.

The socio-spatial habitus is woven by articulated spatial senses and practices, in this case by the artisanal fishing trade. It is a spatial knowledge defined by a socially, territorially and economically situated practice and identity. It is the coastal trade and the territory that articulates the construction of the habitus, the deterioration of the trade, of their practices and culture would mean the weakening of the habitus that identifies the space and the community. In El Morro, there is a community that has survived alongside the trade, their way of using the space articulates memory, identity and abilities of adaptation. Socio-spatial habitus as "incorporated knowledge" (Bourdieu, 1991), allows preserving the practices of the trade and has allowed them to act in an organized fashion on facing external phenomena, like the 2010 tsunami. The perceived and lived space, the experience, overlaps the space represented from external players. This knowledge was essential after the catastrophe, as it allowed the survival of the inhabitants in the emergency camp.

As a result of this, we can say that the hypothesis that the cove is a frontier or heterotopia, a counter-space, in the terms of Foucault (1967), is confirmed. A different space, not only in terms of revolutionary paths, following the definition of Lefebvre (2013), but rather simply because of what the people do, feel, perceive and end up articulating in their search of meaning for their daily lives (Harvey, 2012: 15).

Although the fight of the "Morrinos" to keep their settlement is configured under criteria that are unlike the revolutionary form, its character is placed under the idea of the city as a right (Lefebvre, 2013)**9**. It constitutes the intention of keeping development models other than capitalism that respect the value of use of spaces and adapt to the needs of their inhabitants in a way that impedes the progress of the abstract space, materialized under the installation of fishing industries, real-estate projects and port extensions that respond to the neoliberal urbanization of the coastline (Guerrero & Alarcón, 2018). The community approach of El Morro cove contains a strong sense of defense of the lived space, in the sense of "creating a less alienated, more significant and cheerful alternative urban life, although, as always, in the thinking of Lefebvre, conflictive and dialectic, open to the future and to the meetings and search of the imperceptible novelty" (Harvey, 2012,p. 6).

Despite that the Morrina community accessed the State-run reconstruction process after the catastrophe, this process is developed under criteria negotiated by the inhabitants themselves. This fact, responds to the idea of "imagining and rebuilding a different type of city, far from the chaos caused by the frenetic globalized urbanizing capital" (Harvey, 2012,p. 14). That is to say, differential spaces, marked by those communities that are distanced from the means of production and reproduction imposed by the capital.

9 Although the concept of heterotopia is proposed for the first time by Michel Foucault, this article refers to the concept proposed by Lefebvre, who generates an analysis from the representations built on the space and the spaces of representation.

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VII. CONCLUSIONS

Urban coves or those close to urban spaces are historic spaces that express the contradictions of capitalist society. These are spaces stressed by the progressive pressures of global economic players to occupy the urban coastal space (Hidalgo, 2016). The forced eradication and displacement of coastal fishing communities has historically been a strategy used by capital to appropriate the shoreline and its resources (Harvey, 2012). The crises and disasters, with the compliance of state agents, are understood as opportunities for the use of capital and to execute dispossession practices. The coves and artisanal fishing culture have survived dispossession practices through the development and preservation of a coastal habitus that builds and produces the space. The attachment to the trade and territory allows the existence and preservation of a socio-spatial habitus, and in a back and forth cycle allows that these coastal communities preserve their spaces and the culture, economy and identity that has historically defined them.

The analysis of the socio-spatial habitus, the distribution of uses and productive, social and cultural practices, as an expression of the fishing culture deployed in the space, allows us to understand and reveal how the identity, trade and built territory are factors that allow the communities to adapt and resist entropic and natural processes. The construction of a differential space, not in the revolutionary meaning of the concept, but as a space that fosters difference as an element of cohesion and action, would seem to be key for the preservation of these spaces and their culture. The attachment to the trade and territory is a core requirement for these communities' maintenance.

The constructive forms of the cove and the sociability and culture that are used in the space associated to them, show the possibilities and strengths of the forms of self-management and construction of working-class urbanism. These forms, typical of working-class living, should be strengthened and accompanied by state agents, as they house in it, the preservation of a traditional trade and of a cultural and landscape heritage. However, the governance models of the coastal territories are focused more under the logic of the capital and the large industrial processes than on the communities. The negotiated and participative acceptance of the Morrina community to the reconstruction process, expresses the conflict dimension of construction of the space mentioned by Lefebvre (2013), but opens up an opportunity to observe the central role that the identity and spatial attachment play in the negotiation of permanence on facing forms of domination and homogenization of the space. Elements that must be central, when it comes to thinking and planning a more sustainable coastal urban space.

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Recibido: 27-05-2020
Aceptado: 01-11-2020

ANALYSIS OF THE PERSPECTIVE OF INTEGRATING THE NATIONAL RURAL DEVELOPMENT[1]

POLICY INTO COMMUNAL DEVELOPMENT PLANS IN CHILE

ANÁLISIS DE LA PERSPECTIVA DE INTEGRACIÓN DE LA POLÍTICA NACIONAL DE DESARROLLO RURAL PLANES DE DESARROLLO COMUNAL EN CHILE

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PÁG. 66 - 79
ISSN 0717 - 3997 / 0718 - 3607

1 This work forms part of the Research on Governance and Territorial Organization (NUGOT). Paula Altamirano Estay took part as a collaborator in this article

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Este trabajo explora la perspectiva de integración de los propósitos que persigue la promulgación de la reciente Política Nacional de Desarrollo Rural (PNDR) de Chile en los instrumentos de planificación a escala local de las comunas rurales en Chile. Para tal efecto, revisa, clasifica y analiza especialmente los contenidos de cada Plan de Desarrollo Comunal (PLADECO) de un total de 30 comunas rurales en el país. De norte a sur, los PLADECO de estas comunas rurales, se evalúan en función de sus contenidos, de acuerdo con sus fundamentos empíricos, objetivos, conceptos y gobernanza, así como en referencia a sus ámbitos predominantes en materia de desarrollo rural y su articulación con el marco normativo-institucional regional y sectorial. Los resultados aportan importante evidencia sobre la escasa proximidad que tienen los PLADECO vigentes de las comunas rurales con los contenidos de la PNDR (política que integra elementos de la nueva ruralidad y/o desarrollo rural territorial), especialmente desde el punto de vista de su vinculación con otros instrumentos de planificación normativos e indicativos, políticas sectoriales y de su articulación con actores institucionales.

Palabras clave: nueva ruralidad, desarrollo rural territorial, planificación rural, zona rural, política territorial.

This work explores the perspective of integrating the goals that the recent enactment of Chile's National Policy for Rural Development (PNDR in Spanish) seeks at a local level in planning instruments for rural communities in Chile. For this purpose, it reviews, classifies, and above all analyzes the contents of each Communal Development Plan (PLADECO in Spanish) of a total of 30 rural communes in the country. From north to south, the PLADECOs of these rural communes are evaluated based on their content, considering their empirical grounds, goals, concepts and governance, as well as their prevailing rural development areas and their interaction with the regulatory-institutional framework at a regional and sectoral level. The results provide important evidence on the limited proximity current PLADECOs have with the contents of the PNDR (a policy that integrates elements of the new rurality and/or rural territorial development), especially from the point of view of their ties with other normative and indicative planning instruments, sectoral policies and their interaction with institutional actors.

Keywords: new rurality, rural territorial development, rural planning, rural areas, territorial policy.

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I. INTRODUCTION

The National Policy for Rural Development (PNDR in Spanish) is a milestone in the goal of assigning value to the contribution of the rural area to the social, economic, and environmental development in Chile. This, on one hand, facing an accelerated urbanization process that has occurred in the regional capitals in recent decades, fundamentally due to a fragility of normative planning instruments and the non-existence of territorial organization instruments that protect rural land (López-Morales, Gasic & Meza, 2012, Vicuña, 2013, Arenas & Orellana, 2019). And, on the other hand, considering the important inequality gaps caused by an economic and social development that favors urban communes over rural ones, that the PNDR itself outlines in its diagnosis.

The Communal Development Plan (PLADECO in Spanish) is defined in Law N°18.695 Constitutional Organic Law of Municipalities, being one of the instruments that municipal administration has for the development of the commune. It must contain actions oriented towards satisfying the needs of the local community and promoting its social, economic, and cultural progress (Ruz, Maldonado, Orellana & Vicuña, 2014; Valenzuela, 2018). Likewise, it must consider citizen participation and coordinate with the public services that operate in the communal area or exercise competence within it.

76% of Chile's communes are rural or have a significant part of the basis of their social and economic development in rurality (PNDR, 2020), which is why the PLADECO is the instrument that currently allows best evaluating the requirements and projecting the pro-rural development projects of the communes, where their inhabitants, public and private players, can come together for a common goal (Orellana Mena y Monte l., 2016). From this perspective arises the question, what is the level of integration of the contents that the PNDR proposes in the PLADECO of the rural communes in Chile? The working hypothesis is that the current PLADECOs of rural communes in Chile have a limited approach to the strategic goals and guidelines that the PNDR proposes, mainly due to the weakness they show in their interaction with the normative-institutional structure that is promoted from the Government's sectorial and regional level.

In this regard, Nieto & Cárdenas (2015) made an analysis about the autonomous Spanish community of Extremadura and the application of the LEADER initiative. This analysis produced variable results regarding the reduction of demographic and socioeconomic differences between rural and urban areas, despite this being the main goal of these policies. Blanco (2019) prepares an analysis of the main policies for rural development, both in the European Union and in some Latin American countries between 1990 and 2008. Although the application of bottom-up territorial policies is seen, their incapacity to resolve the high levels of poverty is made clear. Valencia-Perafán et al. (2020) take stock of the rural territorial development policies regarding the achievements linked to the dissemination of the territorial approach and to the increase of participative processes, and their limitations related to intersectoriality and multiscalarity of the implementation processes and the multidimensionality of the expected results. These and other studies (Fernández, Fernández & Soloaga, 2019), have shown that the implementation of rural development policies has a limited field of action and effects. Therefore, this work is transcendental to understand and assess how close or far off this application is from the new rurality and/or territorial rural development in the goals this policy sets out.

The document, aside from the introduction, considers six sections. The first establishes the theoretical framework, where the different authors and cases are analyzed regarding the position of new rurality and territorial rural development. The second includes a section where the case study that considers the territorial distribution of the chosen communes and some sociodemographic characteristics is presented. The third corresponds to the methodology applied, which is qualitative in nature and consists in establishing the level of proximity and consideration of the elements PNDR sets out in the different PLADECO, considering three issues. The fourth presents the main results considering these three issues. The fifth is a discussion based on the results obtained. Finally, the sixth shows the work's conclusions.

II. THEORETICAL FRAMEWORK

Gómez (2001) considered that the conception of the rural has relevant consequences for the structuring of public policy, which has been reflected with the current economic hegemony. The change of the industrialization model by the substitution of imports to one focused on the foreign market as of the 1970s, triggered a restructuring of the rural economy in Latin America (Kay, 2007, 2009). The implementation of State-led neoliberalism in several social spheres, opened the door to the new rurality approach (Kay, 2007), as well as important transformations within the rural agents (Blanco, 2019). This approach, adopted from the 1990's by international institutions, became a term in the region to attract international resources. Kay (2009) states

6 See the document of Rural Development National Policy: https://www.diariooficial.interior.gob.cl/publicaciones/2020/05/05/42647/01/1757299.pdf

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how this concept is typical of Latin America, highlighting it as a richer term than others developed in Europe and North America at the end of the 20th and start of the 21st century, like the comprehensive rural development of Shucksmith (2010). However, its fragmented definition lies in this richness, as it became an umbrella concept that refers to any new productive or economic element in rural areas or any issue that has not been studied at length before. Gómez (2001) assures that this new rurality actually has been around for several decades, so the concept of the "new" is questioned. He actually outlines that in recent years, a reality that had been previously ignored has been more thoroughly observed.

The territorial and planning development approach allows valuing what is new in rurality. The previous approach was predominantly dichotomic, agrarian and productive (Sepúlveda, 2008), related with what was not modern and presented in contrast to the overvaluation of the urban as a guarantor of wellbeing (Gómez, 2001), without considering other urban-rural relations and transformations. Therefore, the new rurality (Gómez, 2001; Kay, 2009) and territorial rural development (Sepúlveda, Rodríguez, Echeverri y Portilla, 2003; Sepúlveda, 2008, Valencia-Perafán et al., 2020) is presented as a broader, more diverse concept, that considers elements based on technological modernization, productivity and economic diversity, reduction of poverty gaps and territorial inequality, environmental sustainability, gender equality, revaluation of the countryside, its culture and identity, decentralization and new institutional agreements. Recently, Fernández, Fernández and Soloaga (2019), understand the rural as a space that is traversed by relevant transformations, including economic-productive diversification, with ever less agricultural weight, greater interaction with the urban, with a greater territorial multifunctionality and a population that is culturally closer to the contemporary urban paradigm. In this sense, they mention rural territorial development as a response to solve rural poverty, being key to understand this already more diversified context, and even proposing changes to improve the conditions of the rural areas through a production and institutional transformation process. For Blanco (2019), the new rurality gives a relevant character to the territory, understanding it as the space for the interaction and cooperation of the different projects to improve the quality of life, including institutional reforms that allow a more democratic and representative governance of present needs. Thus, new elements and conditions are promoted for a greater local governability, prioritizing endogenous initiatives, innovation, competitiveness, and social capital. This "bottom-up" approach, contrasting greatly with the "top-down" centralist action, has been incorporated in one way or another by several of the region's governments, along with different international organizations, including Chile with the recently passed PNDR. However, its application at a local level is unknown due to the lack of regulations that can govern over these territories. Fernández, Fernández and Soloaga (2019) acknowledge that one of the most complex challenges is giving the center stage to local territorial players, including the institutionality, the instruments they have, and their coordination with others from a higher level. For this reason, the need arises to study the existing rural development planning, with PLADECO being the available and closest instrument to address this paradigm.

An example of the implementation of the new rurality and/or long-standing rural territorial development is the Common Agricultural Policy (CAP) that emerged with the European Economic Community in the post-war period (Blanco, 2019). Although its initial goal was to protect and support food production, from there it has evolved towards the aforementioned approach. It includes granting help to unfavored areas in matters of agricultural production, promotion of economic diversification, and even attention to the population and heterogeneous activities with a territorial and multisectorial-based approach. More recently, it has gone for reforms of community rural development policies, with plans designed based on the characteristics of each area, including the participation of local players, as well as incentives for diversification, innovation, adoption of environmental measures and improvements in terms of production quality. One of the programs that stands out under the CAP is the LEADER program (Sepúlveda et al., 2003, Nieto & Cárdenas, 2015, Blanco, 2019), which is a comprehensive development model with an endogenous territorial approach, focusing on economic diversification, sustainability, valuation of natural and cultural heritage, promotion of employment and quality of life, starting from projects with decentralized financing.

According to Blanco (2019), a duality of rural policies is seen in Latin America, with the first focused on export-based agricultural production, and the second on rural development, with an emphasis on reducing poverty. In Mexico, already in the 2000s, the role of the countryside was recharacterized within the country's development, acknowledging the structural difficulties based on how far behind and stagnated it was (Torres & Delgadillo, 2009). In fact, it is suggested that, in order to ground the intentions to plan rural development, a comprehensive, territorial and sustainable approach must be adopted, going beyond the sectorial vision (Valencia-Perafán et al., 2020). In Costa Rica, four core concepts were defined to cover the rural sector starting in the 1990s: production reconversion, improvement of living conditions, institutional modernization and strengthening of human resources (Blanco, 2019). This implies policies destined to support large non-traditional export producers, small traditional producers, and other vulnerable sectors. In Argentina, according to Noguiera, Urcola & Lattuada (2017), rural development in the last twenty years has been characterized by a correction of the lack of coordination between the players of associated programs, together with a shared vision with production and recovery-based goals. Due to the context of food poverty and security linked to small-scale farming production, the need was seen of considering rural development and family-based agriculture in the political

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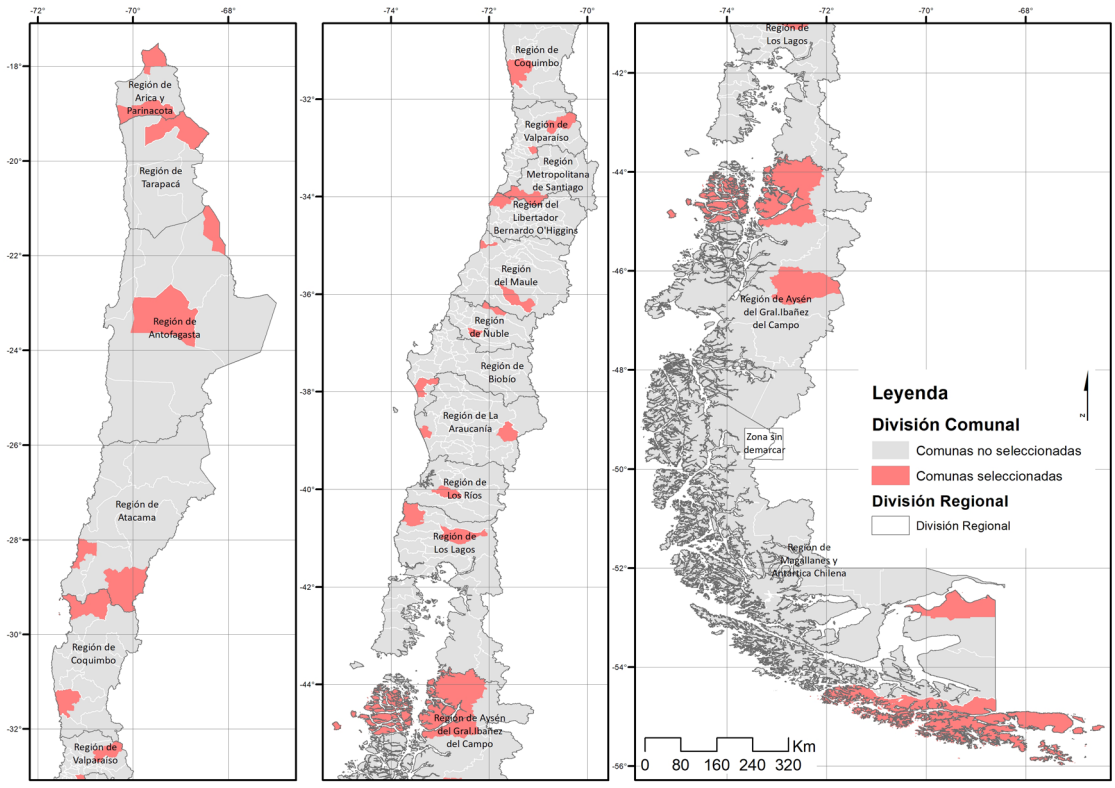

Figure 1. Map of communes selected to assess the PLADECO instrument. Source: Own preparation based on information from the Chilean Undersecretary of Regional and Administrative Development.

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agenda, leading to a long-term participative strategic planning. In Peru, following Valencia-Perafán et al. (2020), rural territorial development was seen as an opportunity for local communities to connect to other markets, mainly integrating tourism activities, identifying territorial assets to take advantage of them in competitive and productive terms.

From a global analysis, Rudel and Meyfroidt (2013) instill the debate of the optimal use of rural land with regard to food sustainability and maintenance of ecosystem services. They highlight the rural territory planning and the many players involved in the issue, but state that they diverge in terms of the different uses that they can be given, calling it an "organized anarchy". The production owners, investors, indigenous peoples, environmentalist organizations, among others, dispute the reasoning and action to define the different uses in rural areas that are in constant dispute. The underlying response is a comprehensive planning that considers all points of view, thus defining the multiple vocation of the rural territory. This element agrees with Heike Johansen and Lund Chandler (2015), who state that rural planning can benefit from the participation of different agents upon institutionalizing knowledge and competences, structuring criticism and undermining particular goals.

7 The following documents were checked for this task: Communal Development Plan of Alhué 2014-2020, Communal Development Plan of Alto del Carmen 2016-2020, Communal Development Plan of Bulnes 2015-2018, Communal Development Plan of Cabo de Hornos 2012-2017, Communal Development Plan of Camarones 2017-2021, Communal Development Plan of Camiña 2012-2016, Communal Development Plan of Canela 2009-2013, Communal Development Plan of Cañete 2015-2020, Communal Development Plan of Cisnes 2018-2028, Communal Development Plan of Colchane 2015-2018, Communal Development Plan of General Lagos 2013-2017, Communal Development Plan of Huasco 2019-2022, Communal Development Plan of La Higuera 2014-2017, Communal Development Plan of Licantén 2008, Communal Development Plan of Litueche 2018-2022, Communal Development Plan of Longaví 2017-2018, Communal Development Plan of Melipeuco 2016-2020, Communal Development Plan of Navidad 2016-2019, Communal Development Plan of Ñiquén 2008-2015, Communal Development Plan of Ollague 2019-2024, Communal Development Plan of Olmué 2016-2020, Communal Development Plan of Pallaco 2015-2019, Communal Development Plan of Primavera 2014-2018, Communal Development Plan of Puerto Octay 2016-2020, Communal Development Plan of Putaendo 2016-2022, Communal Development Plan of Río Ibáñez 2012-2018, Communal Development Plan of Saavedra 2014-2018, Communal Development Plan of San Juan de la Costa 2012-2017, Communal Development Plan of San Pedro 2018-2021, Communal Development Plan of Sierra Gorda 2011-2016

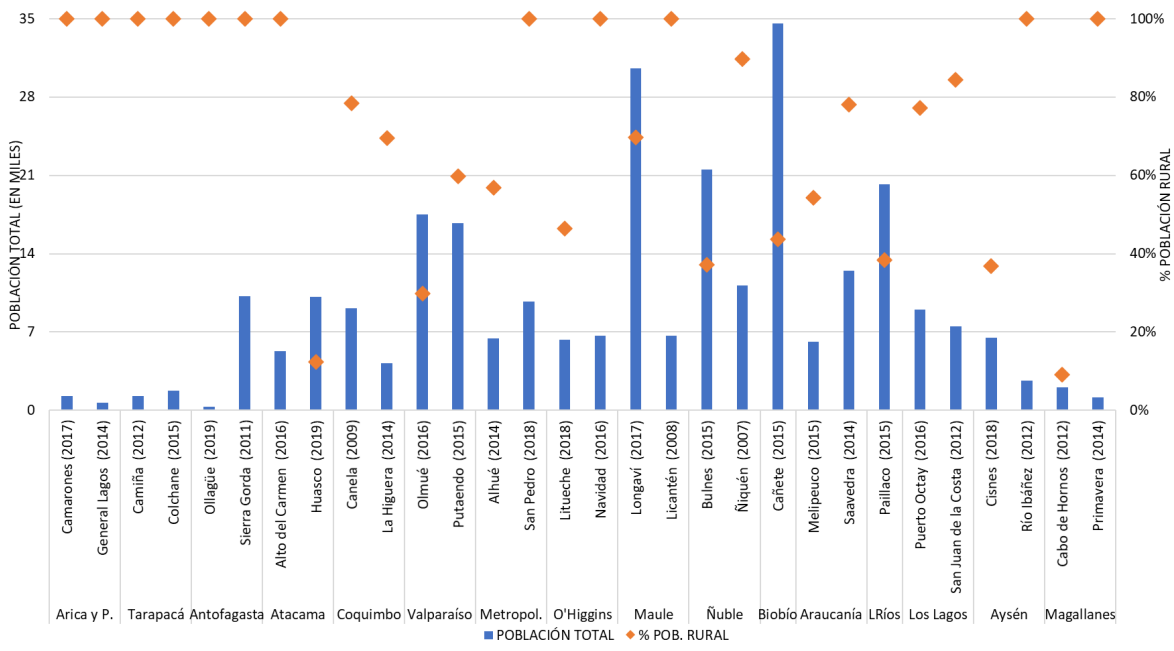

Figure 2. Communes chosen to assess their PLADECO and population statistics. Source: Own preparation based on the 2017 Census.

In Chile, the recent PNDR has taken place within a process of decentralization and strengthening of regionalization driven by the passing of Law 21.074, with the complexities that implies the non-existence of a National Territorial Organization Policy (Arenas & Orellana, 2019). This is another sign of the resistance of the country's normative-institutional framework to progress towards a greater autonomy of regional and local governments in territorial planning (Marshall, 2019; Orellana Arenas, Marshall 6 Rivera, 2016). Chile currently has low decentralization levels at a local scale, mainly in state matters compared to other OECD countries (OECD, 2014; Balbontín, Escobar y Seemann,,2017, Horts, 2018), a situation that restricts a great majority of the municipal governments to sustain a suitable supply of public goods and services (Orellana & Marshall, 2017), weakening multiscalarity governance (OECD, 2017, Henríquez, 2020). In Chile, important territorial disparities are seen, that have been occurring for decades (Aghón et al, 1998; CEPAL, 2017), where even the regionalization processes fostered in the last twenty years have not achieved substantial changes (Rehren, Orellana, Arenas e Hidalgo 2018; Marshall, 2018). An underestimation of rurality in Chile from a territorial point of view can be added to this (Berdegué, Jara, Modrego, Sanclemente y Schejtman, 2010), with the country being much more rural-based than what tends to be assumed. In this sense, the PNDR is an opportunity that must be taken advantage of to allow guiding and supporting the development of local territorial planning.

III. CASE STUDY

The political-administrative division of Chile at a local level comprises 346 communes. According to the definition laid out by the PNDR, 82 of these communes are classified as urban, 185 rural and 78 mixed (the commune of Antarctica is not classified). To develop the methodology, 30 rural communes are chosen (Figure 1), two for each region of the country (with the exception of two regions), considering their rural population percentage as per the 2017 census and the availability of the PLADECO. This selection is established to obtain a qualitative diagnosis of rural development, considering the Chilean territorial diversity.

The location of the communes chosen is seen in Figure 1. While, in Figure 2 the total population and rural population percentage following the 2017 Census are outlined. Finally, the percentage of the population in income and multidimensional poverty is seen in Figure 3. Figures 2 and 3 show, from left to right, the north to south geographic localization, indicating the region they belong to. Both in the territorial distribution and in the demographic and poverty variables, a notorious diversity of rural realities can be appreciated.

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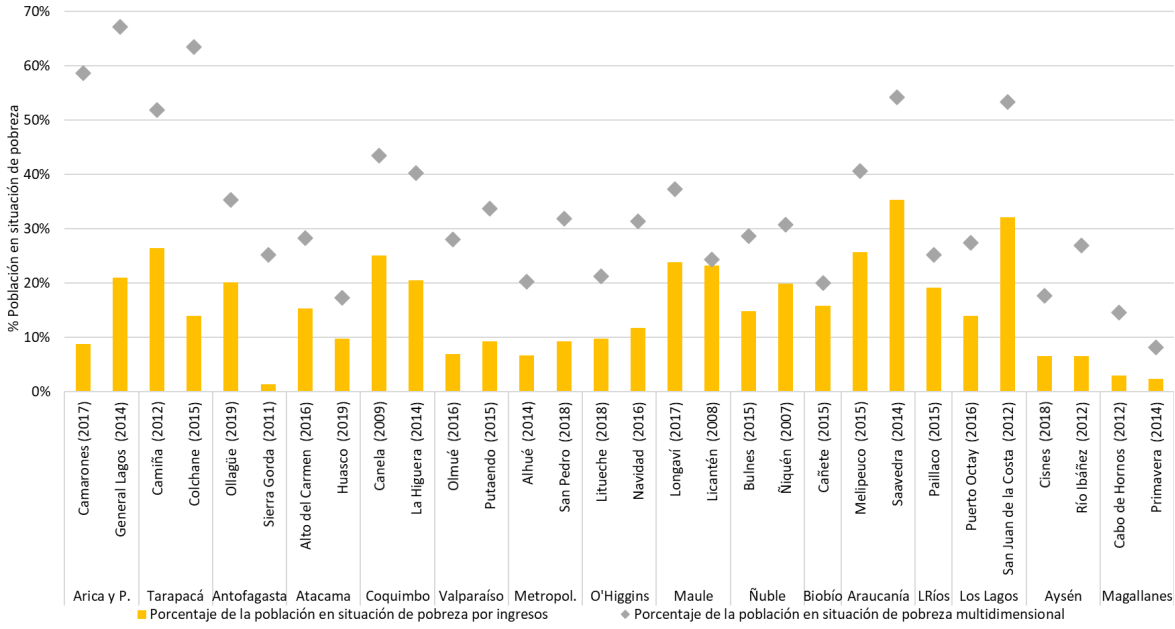

Figure 3. Communes chosen to assess their PLADECO and statistics of the percentage of the population in income and multidimensional poverty. Source: Own preparation based on information from the Social Development Ministry.

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IV. METHODOLOGY

The qualitative analysis method consists in establishing the level of proximity and consideration of the elements listed by the PNDR in each PLADECO. The method is divided into three issues:

- **Content analysis**: this refers to the empirical grounds that the view of the state and the rural development projection are based upon, as well as the conceptualization, a possible description of the vision or target image, and its governance. The latter, in terms of the acknowledgment and involvement of the players responsible for rural development. For this block, contrasting each instrument with the revision of the following sections of the PNDR was considered: Diagnostic elements; Definition of the rural territory and new rural paradigm; General goal; Principles and Governance.

- **Prevailing approach on aspects:** this refers to the explicit addressing of goals, guidelines and actions referring to the different aspects of rural development. For this block, it was considered to contrast each instrument with the four aspects, as well as their core concepts and guidelines defined by the PNDR: Social welfare; Economic opportunities; Environmental sustainability and Culture and identity.

- **Cross-referencing**: this refers to the interrelation the instrument specifies with other planning instruments like: the Regional Development Strategy (ERD in Spanish), which has a large-scale indicative-productive approach; the Regional Urban Development Plan (PRDU in Spanish) that guides the development of the region's urban centers; the Intercommunal Regulation Plan (PRI in Spanish) that regulates the physical development of the urban and rural areas of the different communes that form an urban unit; the Communal Regulation Plan (PRC in Spanish) that regulates the urban physical development of a single commune; sectorial policies, which are implemented at a national, regional or communal level; or institutional references, that is to say, to other public organizations. The analysis focuses on the instrument itself and not on the text of the PNDR, but shows the importance of the institutional integrality that is set out in rural development.

The evaluation method had some special considerations by topic, based on an assigned score. For the topic of *Content analysis*, the following qualification criteria were chosen: 3 points for "matches", 2 for "somewhat matches", 1 for "matches little", 0 for "does not match" and -1 for "contradictory". For

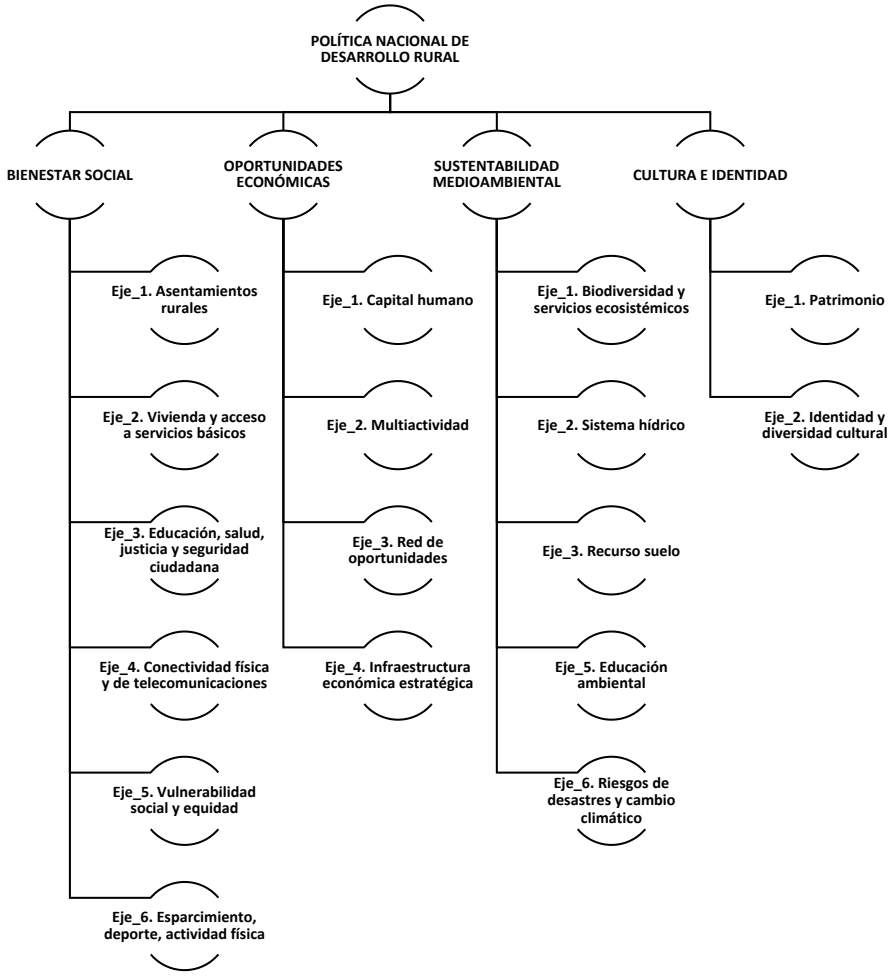

Figure 4. Aspects and core concepts of the PNDR. Source: Own preparation based on the PNDR.

the second topic (*Prevailing approach on aspects*), it was decided, pursuant what was stated regarding each one of the four PDNR aspects and their core concepts (Figure 4), to take on an estimation of the percentage spread compared to that of greater or least emphasis, with the total percentages of the four aspects together totaling 100%.

Finally, in the third block, referring to *Cross-referencing* and that considers the aforementioned three criteria, the following scoring was chosen: 3 points for "total", 2 for "partial", 1 for "limited" and 0 for "none".

V. RESULTS

In this section, the results regarding the contents, approach and cross-referencing of the chosen PLADECO are revised and analyzed.

Content analysis

Within the content analysis of the PLADECO, the empirical grounds, the definition of the concept, the goal and the governance for rural development were assessed, elements that are shown in Figure 5.

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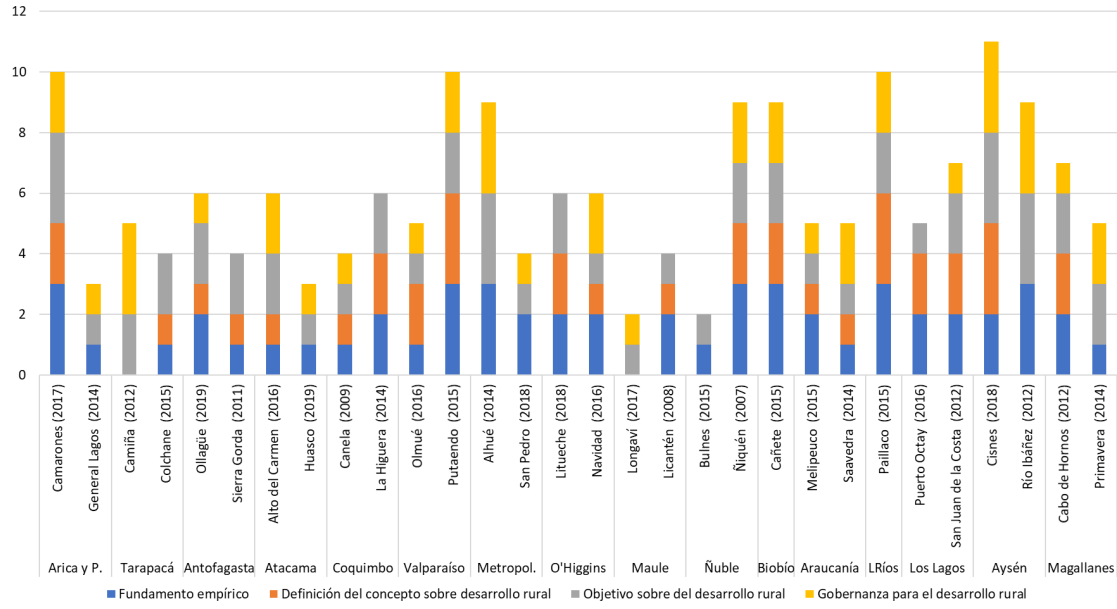

Figure 5. Results of content analysis in PLADECO. Source: Own preparation.

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In the empirical grounds, an acknowledgement of rurality's lagging behind is seen in the PLADECO, which is expressed in a match of 58.9% (53 of 90 possible points) with the PNDR, where there is a narrative that is connected with the new production and economic approaches, especially with rural tourism and renewable energies. In addition, diverse problems are acknowledged, mainly those related to environmental conservation, climate change and water shortage. A certain territorial trend is seen on having a lower match in the PLADECO of the country's northern communes, with some exceptions.

In the definition of the concept on rural development, a lower match with the PNDR was obtained (40%, 36 of 90 possible points), mainly in the north of the country. Although in some PLADECO they present themselves as rural communes, only in a few, is the approach that the new rural paradigm has, explained. Most of the communes, particularly in the north and south zones, have a low match with this statement, on tacitly acknowledging the concept of rural development. Overall, the southernmost area is much more aware of the concept and goals of the new rurality.

Regarding the goals on rural development, a similar match to that obtained for the empirical grounds was attained (57.8%, 52 of the 90 possible points). Initially, the importance of sustainability is acknowledged. In some, territorial diversity is recorded, validating the existence of towns with extensive rural surroundings, as well as the multiple activities there are. Something similar happens with the integrality and participation of public institutions and society players, which on occasions are organized. The territorial competitiveness and efficiency are the most developed, mainly due to the productive vocation of the rural areas. This is accompanied by the dependence on resources and institutions that have attributions over the rural environment. Finally, identity is also relevant, with traditions, cultures and indigenous peoples standing out.

The governance for rural development saw a match of 44.4% (40 of the 90 possible points), given that it is not set out as a cooperation between sectorial institutions or as a cross-section approach in most cases. In some PLADECO, this issue is not clearly explained and is limited to building a locally focused municipal management action aspect, supported by regional instruments, but not by institutions on other scales. In other words, the institutional structure is locally supported, with self-administered follow-up systems that tend to fall in line with the PNDR and the sectorial and regional plans.

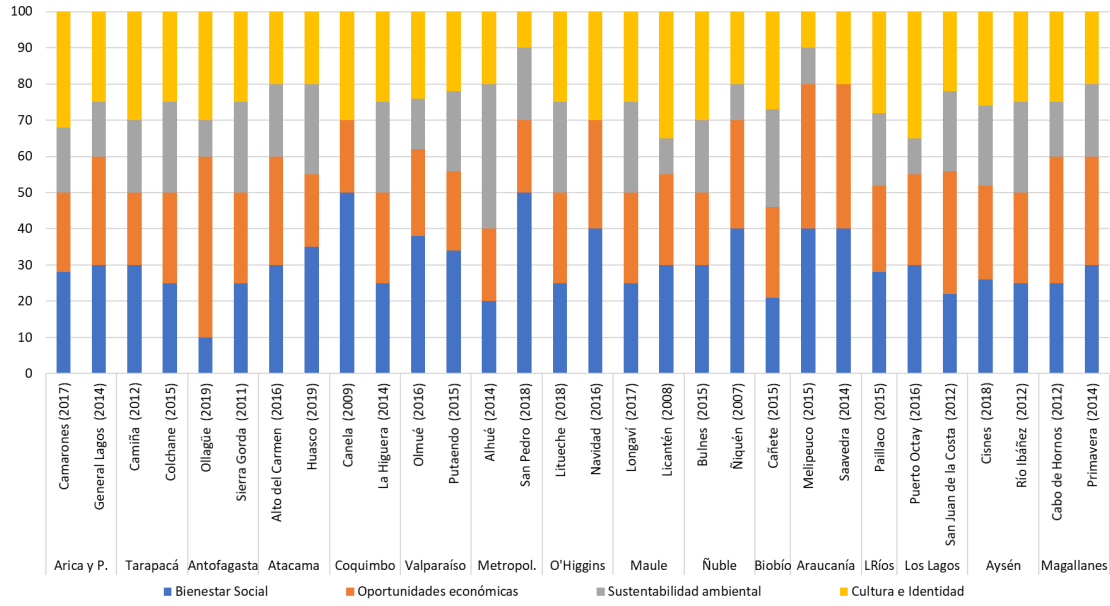

Figure 6. Results of the prevailing approach on aspects in PLADECO. Source: Own preparation.

Prevailing approach on aspects

In a second stage of the PLADECO analysis (see Figure 6), the actions proposed in the action plans of these instruments are compared with the aspects, guidelines and goals that the PNDR proposes. As was already mentioned, a percentage of 100% is distributed between the aspects in such a way that a higher percentage was assigned to those that were best represented by the proposed actions.

Figure 6 shows that the core concepts of the policy that are expressed in the PLADECO, mainly referring to the actions linked to the areas of Social Welfare (30.2%), Economic Opportunities (27.1%) and Environmental Sustainability (25%), and to a lesser extent, Culture and Identity (18%).

Social Welfare, with the highest percentage among the aspects, is explained by the higher amounts in human and economic resources of some of the directions that the institutional structure of the municipalities comprises, given that they all have a Community Development Direction that includes the departments of education, health and sport. Therefore, it is not strange that most PLADECO generate actions related to vulnerability, social equality, and housing. Likewise, it is seen that similar issues related to Social Welfare in the PNDR, like timely and efficient access to justice, are not present in any PLADECO.

As for the aspect of Economic Opportunities, the measures related to training and provision of economic knowledge to the population are repeated. In addition, actions destined to identify and foster particular aspects of the communal production are proposed, although they never outline the development of certifications such as denominations of origin or collective labels. On the other hand, the PLADECO studied did not propose new financing options other than the traditional ones, either.

In Environmental Sustainability, several PLADECO refer to environmental issues like the contamination of natural elements or water shortage. However, these concerns do not lead to concrete actions. The most repeated initiatives are the development of programs on environmental education and caring for water, compared with those that are least mentioned, like the studies, monitoring and recognition of the biodiversity and ecosystem services, conservation and recovery of the soil resources, and measures for disaster and climate change risks.

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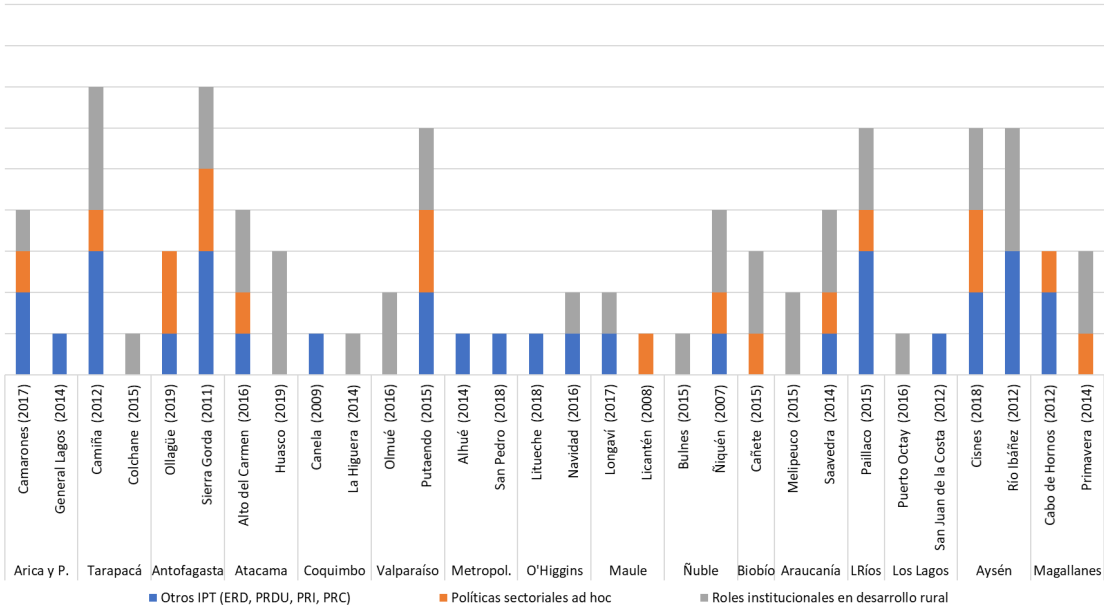

Figure 7. Results of cross-referencing in PLADECO. Source: Own preparation

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Finally, in Culture and Identity, the most repeated actions are related to the recovery and recognition of country life and indigenous cultures, usually related to the education and economic development of communal tourism. In general, the results in this aspect show a recovery of the sociocultural specificity of the territories regarding the goals and guidelines the PNDR outlines. Finally, the territorial differences by area are not significant or conclusive in the results for this and for any previous aspect.

Cross-referencing

The strength of PLADECOs, in terms of their interaction with other planning instruments, public policies and institutional players that have an impact on local territorial development and the rural development of communes, is presented and analyzed as of Figure 7.

In this regard, it is seen that only 35.6% (32 of the 90 possible points) of the PLADECO establish some references to other instruments, with the most significant being the ERD, and with almost none with the PRDU and PRI, as many of these communes are not regulated by these two instruments. Most of the plans do not link their proposal with regional goals, at least not directly, so it is not possible to recognize how the ERD permeates to the actions of the PLADECO. In the case of normative instruments, the few mentions are related with communal PRC, although this is understandable as these mainly regulate urban areas.

Regarding sectorial policies, only 20% (18 of the 90 possible points) of the PLADECO explicitly acknowledge ties with one or more sectorial policies that have an influence in the definition of actions for rural development. In this respect, few plans mention at least one policy their actions are linked to and most do not make any type of cross-referencing. In this sense, it is worth mentioning that sectorial policies are key documents in the definition of local actions for territories, as they provide the State's framework of action in independent matters with a direct impact on rural development.

As for the institutional roles in rural development, this aspect has the highest valuation. 42.2% (38 of the 90 possible points) of the PLADECO mention the interaction with other players, especially in terms of sources of financing. Despite this, a little under a third of PLADECO do not identify institutional responsibilities outside the councils, a matter reflecting that, in their formulation, an

analysis about the plan's governability is not incorporated in terms of institutional roles that should guide and support their execution.

VI. DISCUSSION

The analysis made reveals the effects of the prolonged non-existence of a comprehensive rural public policy framework in a local scale planning. The historic trend towards the shared action of diverse institutions on rural territories, although it has helped achieve great progress in matters like irrigation, drinking water and forestry and farming production, has been developed outside of a comprehensive view. This is established in a framework of governance that does not link the different sectors and levels of public policy that address historically acknowledged rural problems. Likewise, other issues which have gained relevance in recent times (like sustainability and environmental conservation), have yet to find a powerful hold on municipal planning. In this sense, the PLADECO establish some links with emerging narratives about economic diversification, but lack, in their majority, a clear conceptualization and diagnosis about their rurality and the different existing problems. On the other hand, the operationalization of their action plans, in general appear to be outside a coordination with public and private entities that have an influence on rural development.

Without a doubt, the country's centralized layout has contributed to this, considering the significant gaps between councils to implement a comprehensive planning. The lack of mentions to specific aspects of rural territories reveals a concentration of efforts on urban spaces, or rather, an invisibility of socio-territorial differences inherent to rural councils. The contributions of the PNDR, that frame the key issues for a new rural view, must be visible in communal planning with the incorporation of clear development goals and directives. This means a greater effort to be integrated by the municipal level with support of regional and national levels, as difficulties of intersectorial and interlevel coordination still act as an obstacle for this new paradigm.

Thus, the strengthening of the PLADECO as a planning instrument for rural territories requires an internalization of the diversity of socio-territorial manifestations, guaranteed by a systematic implementation of the PNDR goals in their formulation. Alongside this, the interaction of the different sectorial instruments and policies must be aimed for in a common vision of rural development.

VII. CONCLUSIONS

The PNDR, by their strategic nature, specify operationalizing their goals through local-scale instruments, where the interests of the different players whose actions influence the social, economic and environmental development of the rural areas, converge. The PLADECO constitutes the main instrument for this purpose in rural or mixed communes. However, from the results obtained, it is confirmed that most of these are far from integrating well what this policy intends.

The limited interaction of the PLADECO with sectorial policies and regional and national planning instruments, as well as the limited accuracy about the role of different institutional players, weakens this instrument regarding attaining the objectives of the PNDR. However, given that in rurality, the normative-regulatory framework is more fragile to protect changes in land use and that there is less autonomy of budgetary resources in the councils, the PLADECO of rural communes needs to match more closely the challenges that the PNDR outlines.

Facing the limited regulation of urbanization processes in rural areas, and the lack of a national territorial organization framework, the PLADECO is the most viable alternative to incorporate and integrate the current challenges of rural territorial development. Thus, as they require synchronizing with the elements proposed by the PNDR, they also need to strengthen their capacity to diagnose the particular aspects of their rural spaces and to integrate them in their action plans, and to combine these with the intercommunal and regional challenges, showing the different levels and scales of action.

Although the results obtained do not reveal significant differences in the approach of the PLADECO among the large macrozones of the country, it is necessary to consider the territorial production contexts of these plans. The municipal technical capacities, the lagging economic conditions, the structural isolation, and the indigenous component are key differentiating factors for the implementation of pertinent instruments and policies, sensitive to the country's rural territorial diversity.

In summary, the results of this work contribute towards determining the vacuums and gaps PLADECO currently have to become the governing instrument for local development in rural communes, outlining the contents of the PNDR that could be more urgently visualized and integrated in the future.

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Recibido: 13-12-2019
Aceptado: 18-11-2020

URBAN AND ECONOMIC ACTIVITIES IN METROPOLITAN STRUCTURING AXES

THE CONTRIBUTION OF GOOGLE PLACES GEOLOCATED DATA[1]

ACTIVIDADES ECONÓMICAS Y URBANAS EN EJES ESTRUCTURANTES METROPOLITANOS
LA APORTACIÓN DE LOS DATOS GEOLOCALIZADOS DE GOOGLE PLACES

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1 This research has received financing from the Conselleria de Innovación, Universidades, Ciencia y Sociedad Digital de la Generalitat Valenciana and the European Social Fund (ACIF/2020/173).

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DOI: https://doi.org/10.22320/07183607.2020.23.42.07

Los ejes viarios metropolitanos son espacios de centralidad urbana y de oportunidad para promover una mejor conectividad entre las distintas partes del continuo urbano. En este sentido, la caracterización funcional de seis ejes representativos en Madrid, Barcelona, París, Londres, Nueva York y Ciudad de México permite obtener un diagnóstico actual sobre la densidad y diversidad de actividades económicas y urbanas, con el fin identificar aspectos clave sobre los que incidir para mejorar su estructura funcional y social. Para ello, se propone un método que adopta los datos geolocalizados de la red social Google Places como principal fuente de información. De la investigación se deducen importantes similitudes en el carácter funcional de los ejes, entre otras, la predominancia de las actividades relacionadas con los servicios y el comercio o la mayor diversidad de actividades económicas y urbanas en los espacios más centrales. Pero también se identifican diferencias, como son la especialización de determinadas actividades características en cada eje metropolitano o la diferencial relación entre la densidad de población y cantidad de actividades, tanto en términos de densidad como en cuantificación lineal. En definitiva, el método propuesto abre nuevas posibilidades para la planificación estratégica de actividades económicas y urbanas en ámbitos metropolitanos.

Palabras clave: metrópoli, ejes urbanos, actividades urbanas, redes sociales, Google Places.

Metropolitan road axes are spaces of urban centrality and opportunity to promote a greater connectivity between different parts of the urban continuum. In this sense, the functional characterization of six representative axes in Madrid, Barcelona, Paris, London, New York and Mexico City allows obtaining a current analysis of the density and diversity of economic and urban activities to identify key aspects over which to influence to improve their functional and social structure. For this, a method is proposed that adopts the geolocation data from Google Places social network as a main source of information. From the research, important similarities in the functional character of the axes are deduced, among other the predominance of activities related to services and shopping or the greater diversity of economic and urban activities in more central spaces. But differences are also identified, such as the specialization of certain activities characteristic in each metropolitan axis or the differential relationship between population density and the number of activities both in terms of density and linear quantification. All in all, the method proposed opens new possibilities for the strategic planning of economic and urban activities in metropolitan areas.

Keywords: metropolis, urban axes, urban activities, social networks, Google Places.

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I. INTRODUCTION

Traditionally, in Europe and America, the trend of the big city to expand has been recognized with the term "metropolitan area of the city", which covers beyond the political and administrative limits of the city itself (Burgess, 1984, p. 50). Its rapid growth has transformed the urban landscape and brought with it, new dynamics and spatial and socioeconomic challenges that to date, continue being great unknowns, especially on there being a significant lack of standardized data (da Cruz, Oh & Choumar, 2020).

Indeed, facing the importance of the metropolitan scale and the acknowledged lack of sources and tools that allow its study and comparison with other metropolitan contexts (Van Susteren, 2005, p.11), the novelty of this research is located. This is an exploratory and comparative study, fundamentally methodological, whose goal is the functional characterization of six metropolitan axes starting from the economic and urban activity data sourced from the Google Places social network.

The relevance of analyzing metropolitan axes from a functional point of view consists of addressing one of the key matters in the sustainability of cities: the urban complexity (Agencia de Ecología Urbana de Barcelona, AEUB, 2015), that responds to a mixture of uses and their proximity, and which leads to other issues, like the sustainable use of resources and the vitality of urban spaces.

It starts from the hypothesis that the structuring axes that cross the urban continuum through its central area are aspects of urban centrality, that wander along the different fabrics and are physical, social and economic evidence of the evolution and spatial-temporal growth of the metropolis. And, as such, their analysis implies an opportunity to establish strategies that allow reassessing public policies, improving the management and development of these aspects and facing the challenges that metropolitization processes involve (da Cruz et al., 2020).

In this sense, recent studies have demonstrated the great potential of social networks to know the amount and diversity of the economic offer of the cities (Carpio-Pinedo & Gutiérrez, 2020) to resolutions that, through traditional data collection methods, like collecting data onsite, would be boundless. Although there are studies that specifically address functional analysis at a metropolitan scale (Yang & Marmolejo Duarte, 2019), the functional characterization of their axes from social networks constitutes a novelty that this research contributes.

II. PREVIOUS STUDIES

The metropolitan scale and its structuring axes as urban centrality

The difference between the city and the metropolis does not exclusively lie in the number of inhabitants or the surface they cover, but also in their functional and social organization (Park & Burgess, 1984, p.184). While the administrative and political boundaries of the city tend to be rigid, the metropolitan areas are dynamic settings insofar as their four dimensions: spatial, social, economic and environmental (da Cruz et al., 2020).

Despite there not being a consensus in terms of the spatial boundary of the metropolitan urban sprawl (Krätke, 2007), it is often argued that this covers from the downtown to the areas where daily journeys are made, the *commuting zone (*Burgess, 1984, p.51). That is to say, the commute affects the spatial boundary of the so-called "functional urban areas". This criterion allows maximizing the international comparability among metropolitan areas and overcoming the limitation of just using the administrative boundary (OECD, 2020). In this criterion, the structuring axes play a really relevant role as essential elements for mobility as they that spatially link the periphery-downtown-periphery, facilitating access from one end of the urban continuum to the other, while promoting the feeling of belonging of the residents of the periphery, who are also part of the urban vitality of the downtown (Park & Burgess, 1984, p. 184).

Although Burgess (1984, p. 51) illustrates urban centrality in the city's expansion process with a layout of concentric circles and where the central area – *The Loop* – groups the most economically powerful activities, this coexists with other aspects of centrality, *satellite loops*, or represented by streets, avenues, or crossroads of strategic routes for the mobility and functions of the city (Burgess, 1984, p.61). Indeed, the central sections of metropolitan axes tend to be characterized by their urban centrality condition, understood as the concentration, intensity and variety of urban activities, especially those related to political decision, innovation and research, diffusion and emission, exchange and meeting, ludic or recreational and of a symbolic nature (Terrazas, 2004, p. 263).

Although the urban sustainability seeks the balance between the critical mass of population, services and activity and the connectivity of the fabrics through continuous corridors of AEUB activity (AEUB, 2015, p. 131-133), the metropolitan axes that cross multiple administrative divisions are fields of opportunity. Concretely, because the spatial agglomeration of their elements takes place in a longitudinal sense which,

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LETICIA SERRANO ESTRADA, ÁLVARO BERNABEU BAUTISTA, PABLO MARTÍ ÇIRIQUIÁN
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paradoxically, is the least integrated form in itself but the most integrated towards the exterior and towards other systems of the region, given that each one of its constituent elements is directly adjoining the exterior space of the form; unlike the circular form, which is more internally integrated, but segregates the peripheral elements more (Hillier, 2007, p 266).

The functional analysis of metropolitan axes

The analysis of the functional nature of urban areas is of great interest for different reasons. These linear public spaces constitute the spatial unit of our experience in the city (Mehta, 2014), the setting of citizen meeting and the container of public life where social life takes place (Lynch, 1984, p. 407).

Indeed, the amount and concentration – density – and the localization pattern – proximity – of the urban and economic uses and activities in these public spaces are determining factors in the level of pedestrian activity (Hillier, 1996, p. 51; Levy, 1998: p. 61), a matter that is also closely related with urban vitality and that, at the same time, is translated into public safety – self-surveillance – (J. Jacobs, 1961). In the same way, the collective image that is perceived of the environment is, to a good extent, the result of the social use and permanence in these linear spaces, a result of their physical characteristics and of the layout of the functions in the space (Gehl, 2011, p. 96; Lynch, 1960, p. 50).

Thus, the analysis of the patterns of urban and economic uses and activities present in urban axes is a recurrent approach among urban researchers to assess the functional nature of the environment and to value whether there is a good amount, mix or specialization or, on the contrary, if there are gaps of urban activity.

Traditional and current sources for functional characterization

Traditionally, the study of the functional nature of urban aspects has been based on an exhaustive collection, walking the streets, for the later preparation of maps (Gehl & Svarre, 2013; De Souza & Bustos, 2017; Mehta, 2014). These methods have disadvantages regarding the resources their implementation demands, time and cost, and because only the economic activities that are visible from the public space can be recorded. That is to say, those activities which are not marketed on public streets, like in the case of offices or businesses located on higher floors of buildings, which likewise contribute to the functional nature of the setting, can be unperceived in field studies.

It is for these reasons that, for more than a decade now, a good part of urban and geographic research has opted to use technology-based sources like social networks and web services that allow obtaining data in an automatic and massive way. The use of these social media has produced an important advance in the way of addressing urban and territorial research. This is alongside the frequent absence or obsolescence of statistical databases that jeopardize the diagnosis and, therefore, a suitable management of the current reality of the territory has derived into a considerable volume of scientific literature that adopts social networks as a primary source of information (Stock, 2018).

However, these sources are not free of challenges and limitations (Tasse & Hong, 2014). Among other aspects, the exhaustive task of previously checking the data to guarantee reliability and representativity of the sample and the restrictions and terms of service established by the platforms themselves, conditioning total or partial access to the information available within a concrete setting.

In any case, these sources are of interest for this research, because it has been shown that it is possible to obtain data on a metropolitan scale (Folch, Spielman & Manduca, 2018), and also, in general, these are very extended sources and, thus allow progressing in the same issue in different geographical contexts. For example, in recent research, the list of urban activities of Foursquare has been used for urban analysis in Asian (Vu, Li & Law , 2020), European (Carpio-Pinedo & Gutíerrez, 2020) and American (Ballatore & De Sabbata, 2020) contexts.

Concretely, this research focuses on Google Places, a social network associated to Google Maps that represents "Google's attempt to add and organize all the information available about any place in the world" (Barreneche, 2012). Considering the goal and scale of the research, the use of this social network implies important advantages over other traditional sources (Martí, Serrano-Estrada y Nolasco-Cirugeda, 2019).

1. It provides an updated list of the economic and urban activities contained in the building and not just those that have marketing facing the street.
2. The records are geo-positioned, a characteristic that facilitates the mapping and analysis of the information.
3. Places registered on the platform are classified by types of activity or tags, a quality which allows analyzing the type of urban activity in both an aggregated and disaggregated way.
4. Google Places, unlike other networks, is used at a global level (Sen, Quercia, Ruiz y Gummadi, 2016) facilitating both reproducibility of the methods and the comparison between different geographical aspects.

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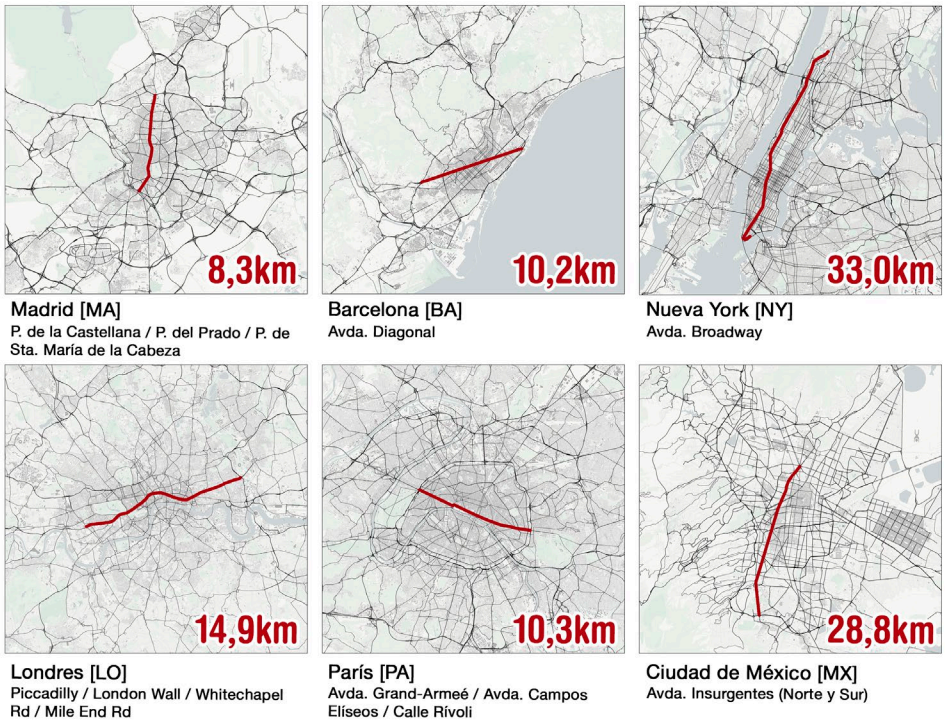

Figure 1. Length of the sections chosen. Source: Authors

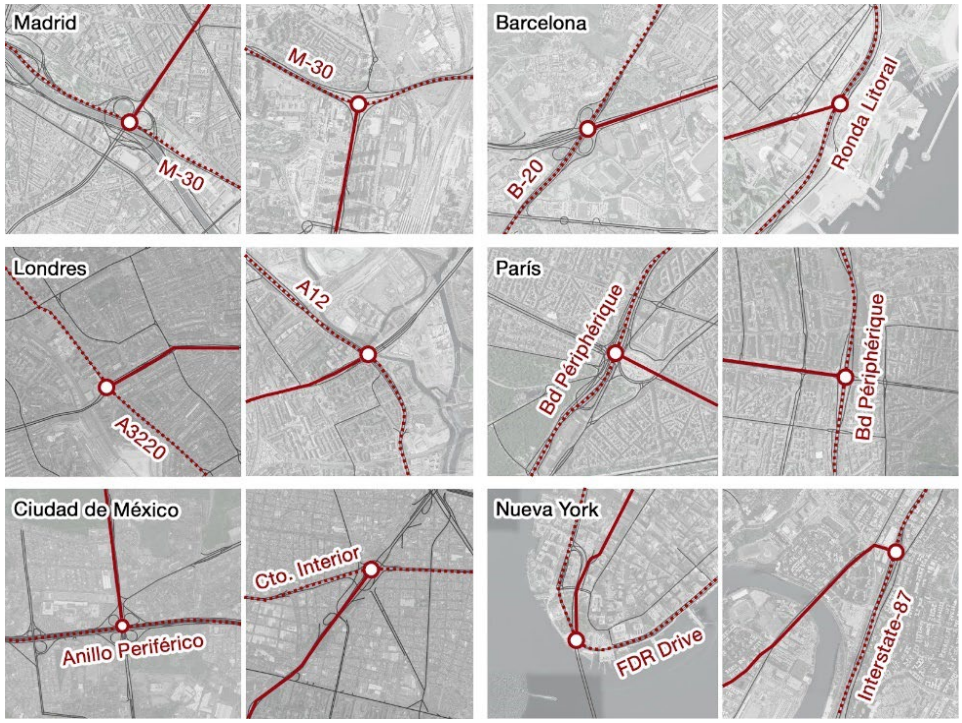

Figure 2. Road intersections that mark the sections. Source: Authors.

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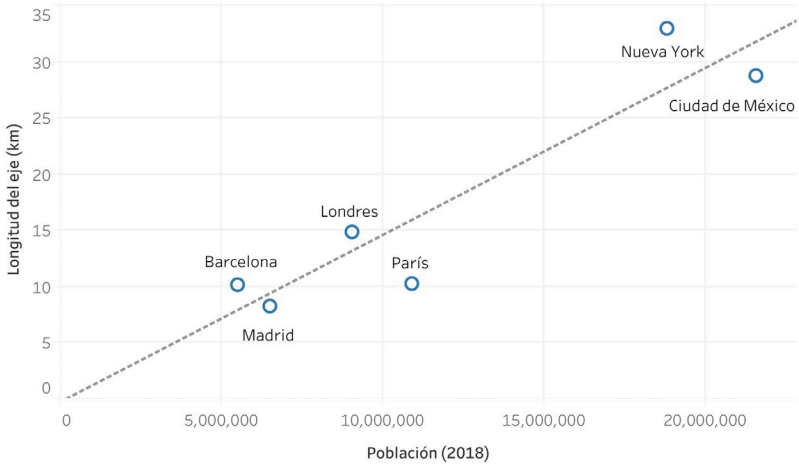

Figure 3. Relation between metropolitan population and length of the axes.Source: Authors

III. CASE STUDIES

For the analysis and comparison of the functional nature of metropolitan urban axes in different geographical contexts, six case studies are adopted: four European, the most representative for the population in Europe, South – Spain, North - UK, and West – France (United Nations, 2018) and two American, including the most populated metropolitan area of the entire continent, Mexico City, and the most representative of North America, New York, which leads, alongside London, the financial centers' ranking at a global level (Morris, Mainelli y Wardle,2015).

These are six metropolis that respond to diverse casuistries regarding their management and socioeconomic context. Thus, in the European context, although the four cases represent European hubs for the economy of knowledge (Krätke, 2007), in the case of Madrid and Barcelona, leaders of the Spanish urban system, the management of the metropolitan areas is still developing, unlike France and the United Kingdom, examples of best practices and confirmable success regarding the implementation of metropolitan scale planning instruments (Hildenbrand, 2017).

Spatial boundary of the study area

A structuring axis of great relevance is identified regarding its hierarchy in the metropolitan network of each case study and then, a representative section is chosen, whose extension is defined in Figure 1.

The selection of the sections is based on their importance in the urban structure, connecting periphery-downtown-periphery, and their length is limited by the intersection with ring-roads, or by the intersection with other first order metropolitan axes, as is shown in Figure 2.

Once the length of the sections is defined, these are connected to metropolitan population density, checking that there is a positive high correlation between the two variables (Figure 3).

Regarding the spatial marking of the sections in their transversal direction, three disciplinary criteria could be considered, adopted by students of the public space and, concretely, those focused on the analysis of urban activity on road links and linear spaces: the façade face (Cullen, 1961; Jacobs, 1995; Jacobs, 1961), the social field of vision, which refers to the maximum distance where it is possible to see and perceive a person or urban activity – 100 m approximately – (Gehl, 2011), and the use in ground floors of buildings alongside the urban space (Mehta, 2019). The first two, (Figure 4, right), allow analyzing the urban image and how this affects the human activities that occur in the space, while, with the third criterion it is possible to understand a relationship between the uses, in uses in the ground floors of the buildings with the socialization of the urban space, (Figure 4, left).

Thus, this research conceptually follows the third disciplinary criterion, but incorporates the two nuances: first, as has been mentioned above, the Google Places

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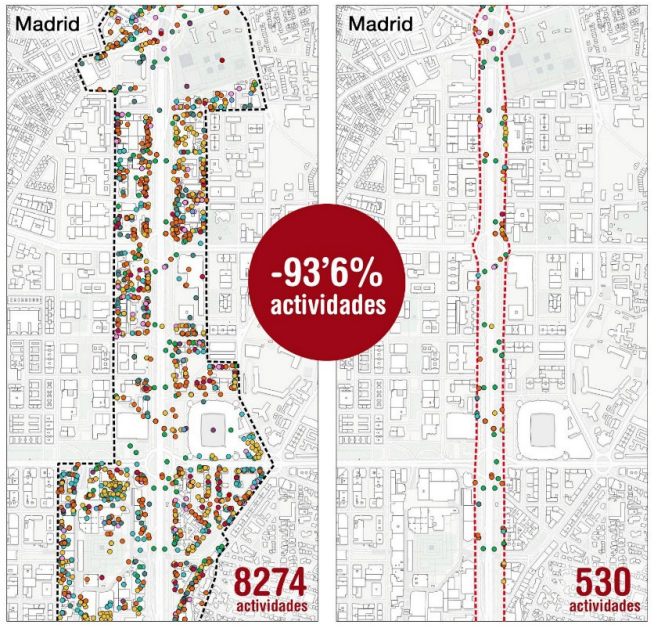

Figure 4. Comparison between the number of urban activities of Google Places included within the spatial limits of the area of study – left – and those exclusively within the route of the axes – right. Source: Authors.

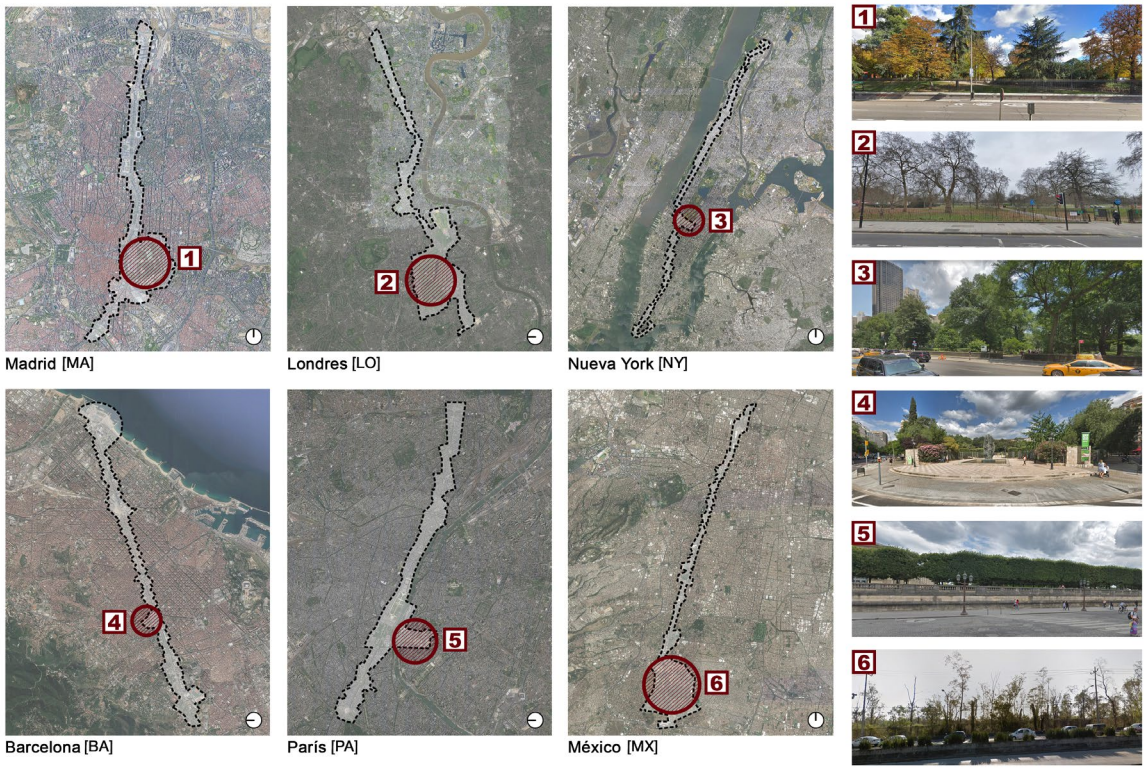

Figure 5. Spatial delimitation of the case studies. Source: Authors.

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database includes all the economic activities contained in the building and not just those located on the ground floors; and, second, that each one of these activities is represented by a point, which can be geopositioned on the façade line or in any other location within the lot, or even, of the block, reason why it is deemed suitable to include the whole block alongside the route of the axes. In the cases where these blocks are occupied by open and public spaces, like parks or urban squares, the edified blocks alongside these spaces are likewise considered.

As for the number of activities recorded that are within the chosen setting, in Figure 4 it is seen that the criterion adopted allows obtaining 93% more data than if the façade line had been considered as a spatial limit. In fact, activities are included that, although they do not directly affect the axis, influence in its functional dimension, on being located near to road intersections that transversally cross the axis. The spatial delimitation of the six case studies considering the described criterion, is seen in Figure 5.

IV. SOURCES AND METHOD

The geolocated data of Google Places were obtained through the SMUA– *Social Media Urban Analyzer* – IT application (Marti et al., 2019), during May 2018. This is a list of places of interest and economic activities with specific qualities like: the name of the place, the type of economic activity or tag (Google Developers, 2019), the physical address and the geographic coordinates.

Next, the extracted data were checked and validated. The verification included the manual revision and the discarding of duplicated data where the information about the name of the place, the coordinates and the physical address matched; and the validation focused on the screening of 128 tags or types of activity associated to the different places. In addition, it was checked that the types of place listed corresponded exclusively to economic and urban activities, discarding other types of tags.

Once screened, the data were grouped with the goal of summarizing the information and aiding its analysis. For this, the taxonomy of places from the Foursquare social network (Foursquare Inc., 2018) is adopted, as unlike other social networks, it has a structure that is well defined in ten main categories for the rating of places of interest and establishments (Keßler y McKenzie, 2019): Arts and Entertainment; Education, Schools and Universities; Food; Health and Sport; Nightlife spots; Outdoor; Professional, Government and other places; Services; Shopping; Travel and Transport (Figure 6). Once categorized, the data were displayed on a map with the QGIS Geographic Information System, and after this, two types of analysis were carried out.

The first analysis allows getting to know the total amount and types of urban and economic activity by axis starting from three metrics: the density of activities, which is also contrasted with the population density, estimated based on metropolitan density, the average number of activities per 100 linear meters of axis, threshold distance at which it is possible to appreciate the presence of a person (Gehl, 2011) and, the representativity of each one of the categories in each one of the study settings.
Although the central fabrics are characterized on having higher densities than the periphery ones, a mean is set with the central metropolitan density (OECD, 2020) aiming at using a standard criterion for all the cases that allow their comparison. The metrics adopted offer a numerical global view about the amount of legal activity and sensorial information available at a human scale.

The second analysis consists in identifying spatial patterns of concentration and diversity of activities on the axes. The data are represented by category on the map and, in line with the work Sen, Quercia, Ruiz y Gummadi (2016) that also uses the data of Google Places to study diverse metropolitan settings, an orthogonal mesh is traced aligned to the cardinal axis that cover the entire areas. The size of the cell is 200 x 200 meters, the same as the reference mesh that the Ecological Urbanism Certification (AEUBAEUB, 2015) sets out to measure the different urban sustainability indicators, among which is the Urban Complexity. Finally, the number of different categories present in each cell is calculated to characterize the diversity of activities.

V. RESULTS

From the data verification of Google Places and the validation of the 128 types of activity or tags, only 87 types are kept, which refer exclusively to economic and urban activities. These are classified in the ten categories of Foursquare, as can be seen in Figure 6.

Regarding the analysis of the data recorded and in respect to the characteristics of the axes and the population of each one of the metropolitan areas, a series of correlations are established through the combination of the diverse variables (Table 1 and Figure 5).

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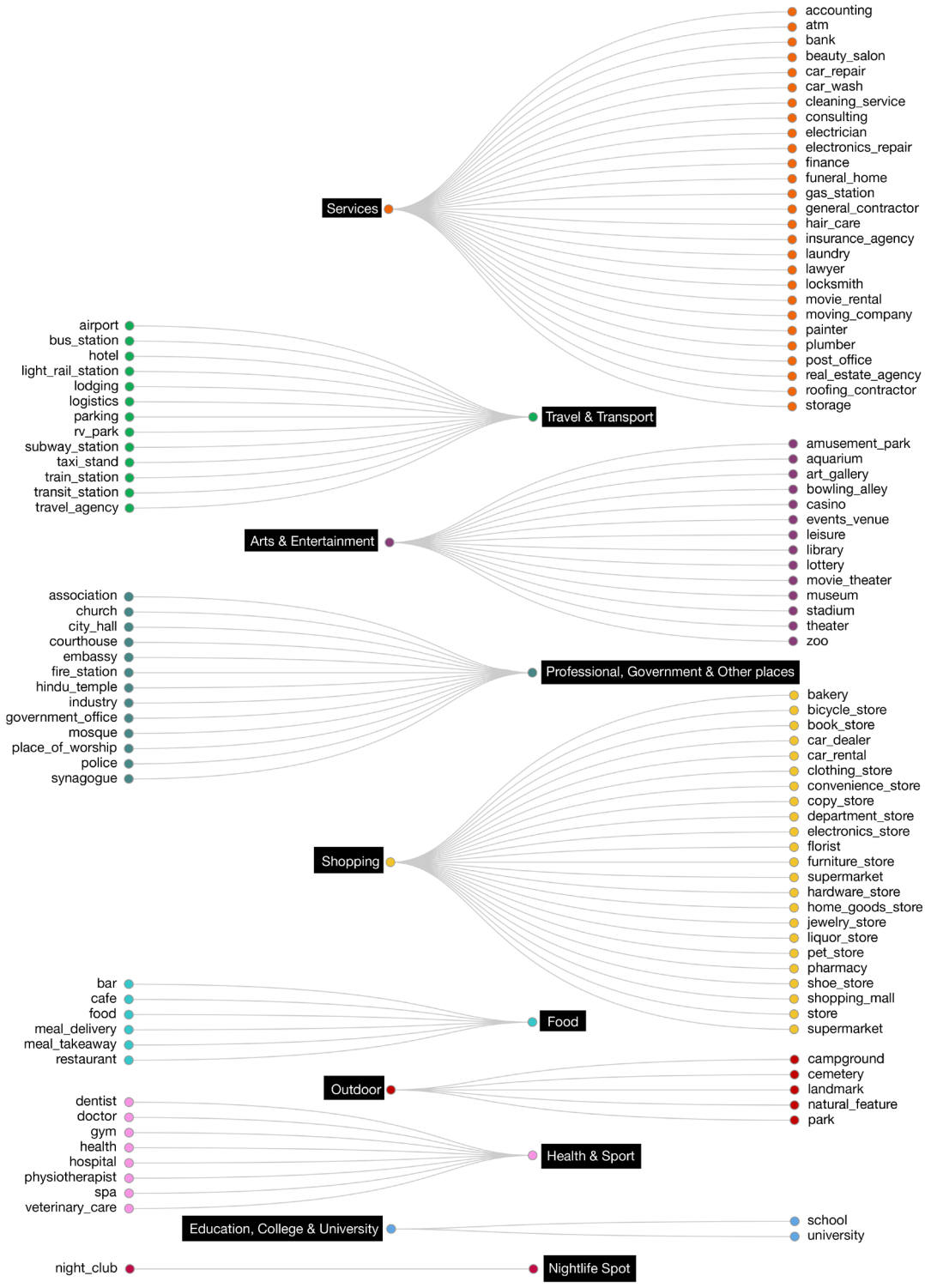

Figure 6. Grouping of Google Places' tags in the Foursquare categories. Source: Authors.

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Metropolitan Area	Length of the axis (km)	Axis surface (km2)	Metropolitan population (2018) (UN, 2018)	Population density of the metropolitan central area (inhab/km2) (2018) (OECD, 2020)	Activities recorded in Google Places	Activity density (act/km2)	Activities by each linear 100 m
Mexico City [MX]	28.8	14.1	21,581,000	5237	11,915	845	41
New York [NY]	33.0	8.6	18,819,000	1445	23,600	2744	72
London [LO]	14.9	11.6	9,046,000	3486	14,023	1209	94
Paris [PA]	10.3	6.7	10,901,000	4999	15,164	2263	147
Madrid [MA]	8.3	7.2	6,497,000	3828	9,413	1307	114
Barcelona [BA]	10.2	5.9	5,494,000	6661	7,916	1342	78

Table 1. Data recorded by metropolitan axis. Source: Authors.

The first finding of interest is that, with the six sections being very active, according to what the density of activities recorded indicates, three groups are recognizable: the NY and PA axes, with the highest concentration of activity; followed by LO, MA and BA, with medium densities; and MX with a significantly lower density of activities. As for the presence of activities by each 100m, the PA axis leads the list along with MA, next, the LO, BA and NY axes have similar amounts and, finally, MX is the axis with the lowest presence of activities. In this sense, the European cases stand out over the American ones, with a higher amount of activities every 100 m. This would lead to other considerations and morphological type debates, which are outside the goal of the research.

Relating the population density and that of activities in the scatter graph of Figure 7, a negative correlation between these two parameters can be seen: the lower the population density is, the density of activities in the axis increases. Thus, those cities with the highest population densities, like MX, have the lowest activities density, while the case with the lowest population density, NY, has the highest number of activities. However, the relationship between population density and the number of activities by each 100 meters increases linearly, Figure 8, contrary to the terms of density, from which it can be deduced that the population density affects the proliferation of activities along the route of the axis, but not so much its population density in areas alongside it. And the relationship between population density and activities, Figure 9, corroborates that, for similar activity densities, like BA, LO or MA, the number of activities every 100 meters is very uneven, which is why the density in a longitudinal sense is not related with the density of the blocks adjoining the route of the axis. In any case, NY stands out as the most singular case, due to its lower population density and higher activities density which, nevertheless, are not reflected in the linear quantification.

Regarding the type of activities, the Services category standards out in the six areas of study (Table 2 and Figure 10) as it exceeds 30% of the total activities in five of the six cases. Likewise, the Shopping category, even more important than the Services category in MX, is the second most represented one in MA, BA, LO and PA, with more than 20% of the total activity. In NY, the category Health and Sport is the second most relevant activity, barely represented in the rest. The Food category is significant in MX and LO, exceeding 18% of the total activities, unlike the case of NY with 7%.

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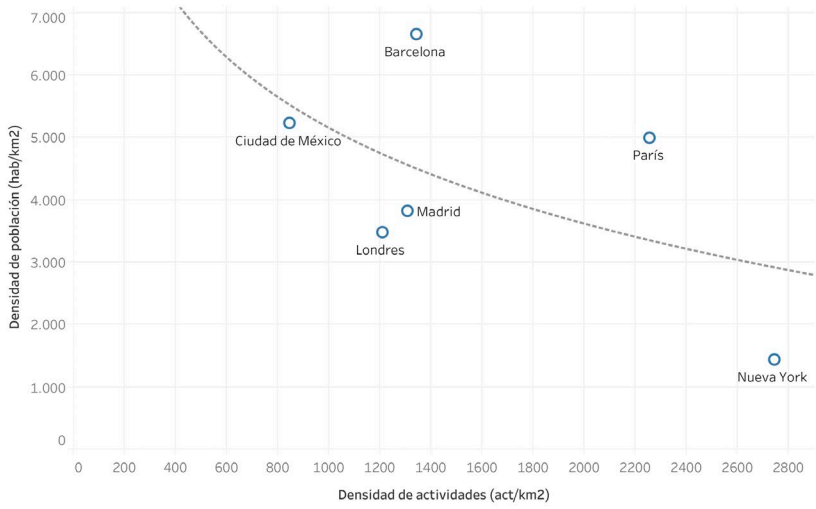

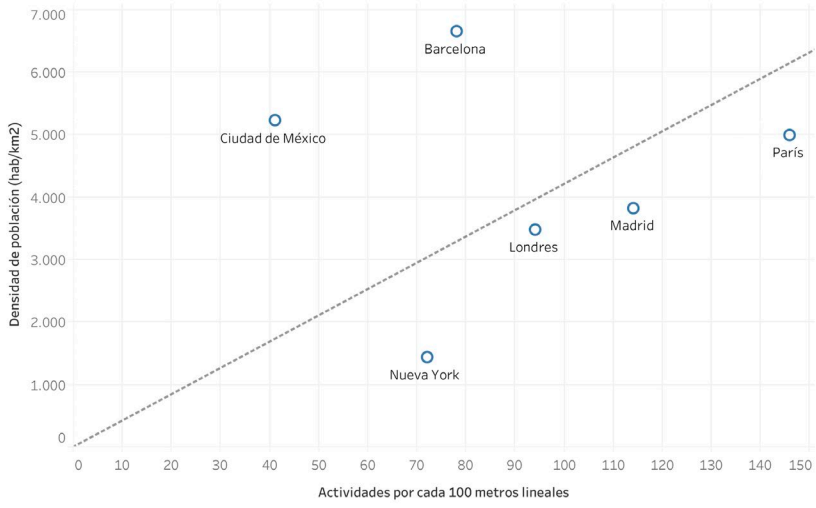

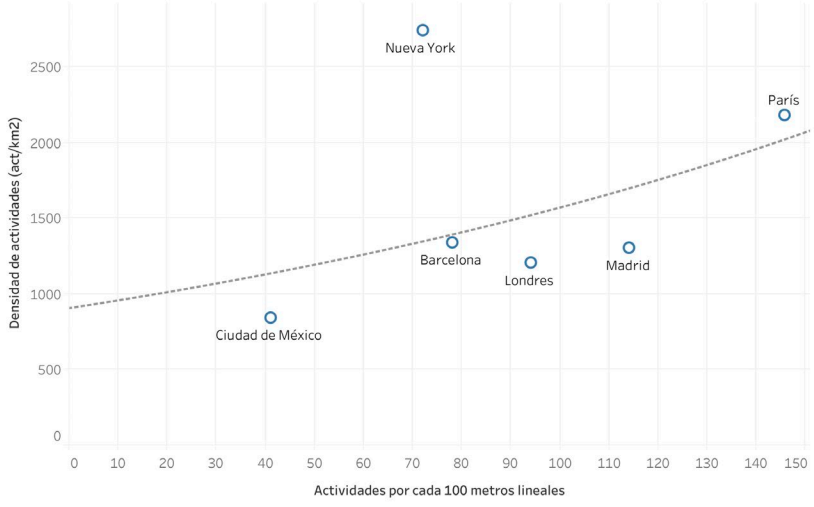

Figure 7. Relationship between activities density and population density. Source: Authors.
Figure 8. Relationship between activities every 100 linear meters and population density.Source: Authors.
Figure 9. Relationship between activities every 100 linear meters and activities density. Source: Authors.

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	Madrid [MA]		Barcelona [BA]		Londres [LO]		París [PA]		Nueva York [NY]		México [MX]	
Artes y Entretenimiento (Arts & Entertainment)	173	1,8%	86	1,1%	320	2,3%	377	2,5%	427	1,8%	133	1,1%
Educación, Colegios y Universidades (Education, College & University)	148	1,6%	138	1,7%	252	1,8%	214	1,4%	459	1,9%	502	4,2%
Establecimientos de Restauración (Food)	1152	12,2%	942	11,9%	2588	18,5%	1920	12,7%	1643	7,0%	2227	18,7%
Salud y Deporte (Health & Sport)	673	7,1%	542	6,8%	579	4,1%	1307	8,6%	6303	26,7%	1436	12,1%
Ocio nocturno (Nightlife Spot)	342	3,6%	290	3,7%	83	0,6%	599	4,0%	340	1,4%	50	0,4%
Aire Libre y Recreación (Outdoors & Recreation)	26	0,3%	48	0,6%	85	0,6%	47	0,3%	95	0,4%	44	0,4%
Profesional, Gobierno y Otros Lugares (Professional, Government & Other places)	315	3,3%	84	1,1%	312	2,2%	314	2,1%	264	1,1%	210	1,8%
Servicios (Services)	3608	38,3%	2881	36,4%	5456	38,9%	4961	32,7%	8667	36,7%	2968	24,9%
Comercio (Shopping)	2248	23,9%	2207	27,9%	2990	21,3%	4158	27,4%	4267	18,1%	3422	28,7%
Turismo y Transporte (Travel & Transport)	728	7,7%	698	8,8%	1358	9,7%	1267	8,4%	1135	4,8%	923	7,7%
TOTAL	9413	100%	7916	100%	14023	100%	15164	100%	23600	100%	11915	100%

Table 2. Data of Google Place recorded by area and category. Source: Authors.

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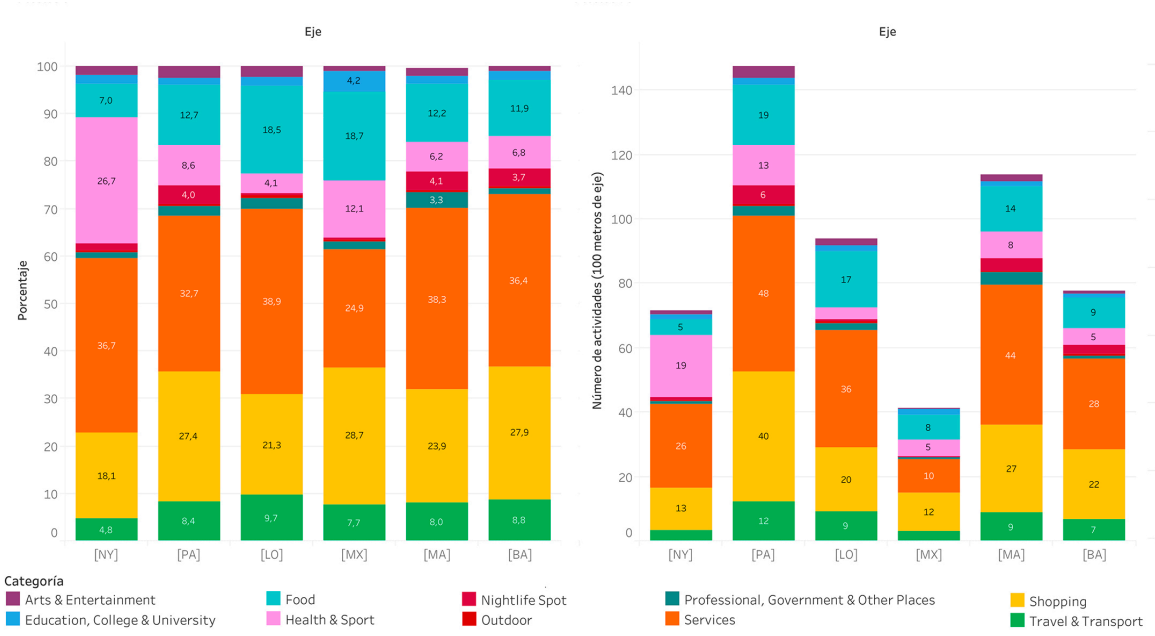

Figure 10. Frequency of the types of activity (left) and number of activities per 100 linear meters (right). Source: Authors.

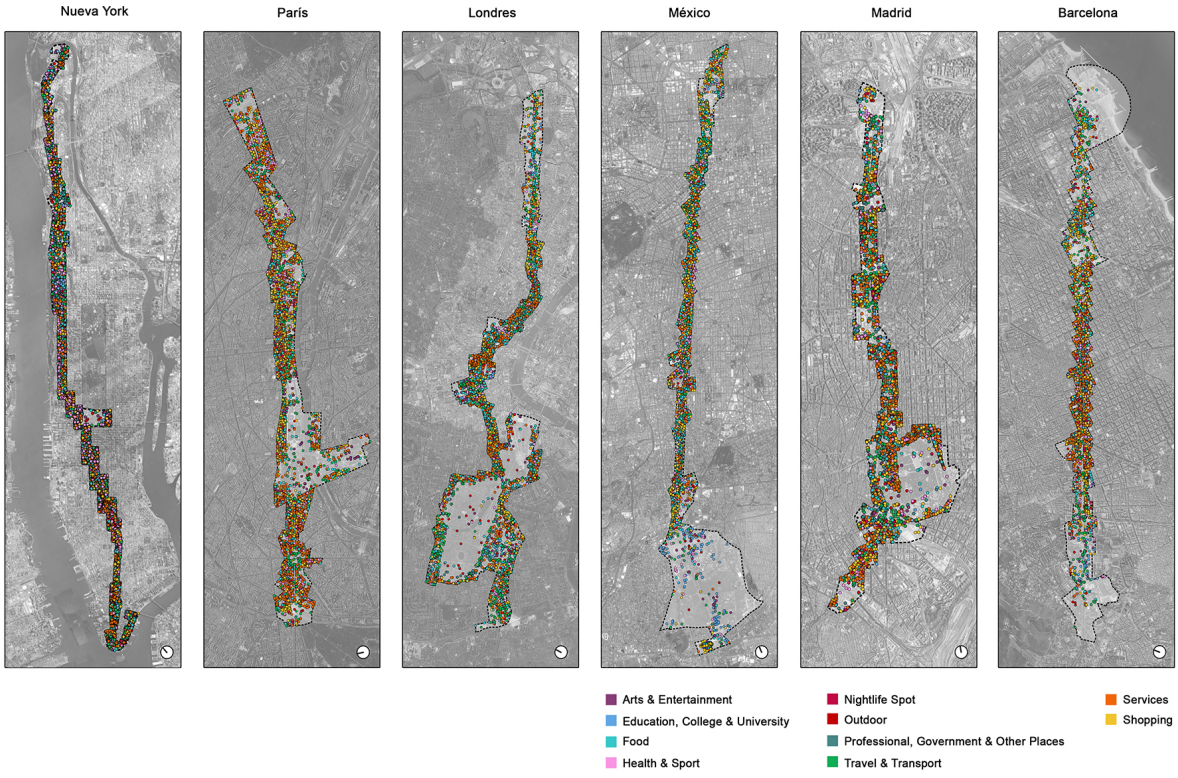

Figure 11. Distribution of urban activities. Source: Authors

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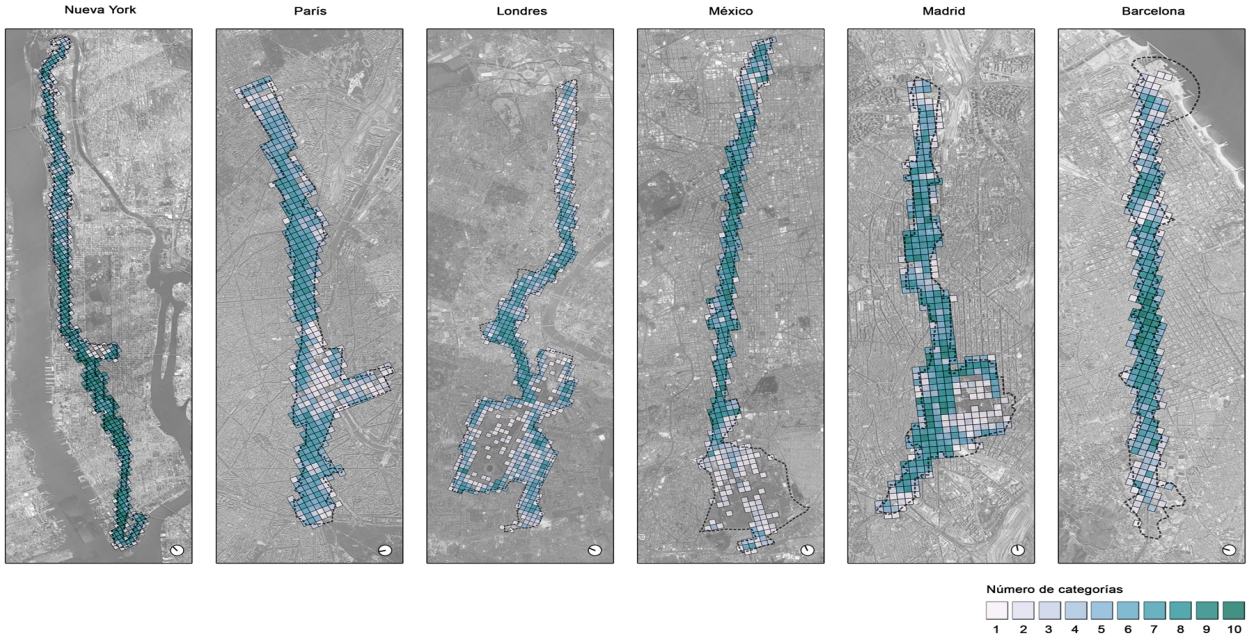

Figure 12. Number of different categories by 200 x 200 m cell surface area. Source: Authors.

Regarding the category of Travel and Transport, present in similar amounts in all the axes, it represents spaces linked to public transportation and shows the great connectivity and the structuring role of the analyzed areas, Figure 10, left.

Regarding the spatial distribution of the activities (Figure 11) with the exception of some very limited areas, where activity gaps are seen, in general the axes have similar patterns, with a higher concentration of urban activity in central zones and a tendency towards the spreading of activity at the extremes. This is logically by reasons of centrality, since these axes connect central and compact areas with more peripheral and spread out areas and, therefore, with higher and lower concentration of activity, respectively. NY is an exception since it maintains a homogenous concentration of urban activity in practically the entire axis, with the extreme south, Lower Manhattan standing out, where the city's financial center is located.

This aforementioned trend is confirmed with the analysis of activity diversity (Figure 12). The central areas have a higher diversity than the extremes, with the exception of NY which has a high diversity along the whole axis.

The PA and LO axes are the least diverse, with cells that gather between 4 and 6 activities on average. It also stands out on how the diversity drops considerably around the large parks.

Finally, areas with a certain specialization have been detected, whose main activity rarely accepts another type of use, for example, the case of the financial areas in LO or the university campuses of MX and BA (Figure 13).

VI. DISCUSSION

Among the most important challenges that the metropolitan areas present is guaranteeing the sustainability of the built environment in all its dimensions through the design of governance strategies that respond, both to a timely and current diagnosis, and to the needs of the citizens.

Attending the urban complexity and the distribution of uses in the territory, starting from evaluating the density and diversity of economic and urban activities at a metropolitan scale, directly affects the public space

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ISSN 0717 - 3997 / 0718 - 3607

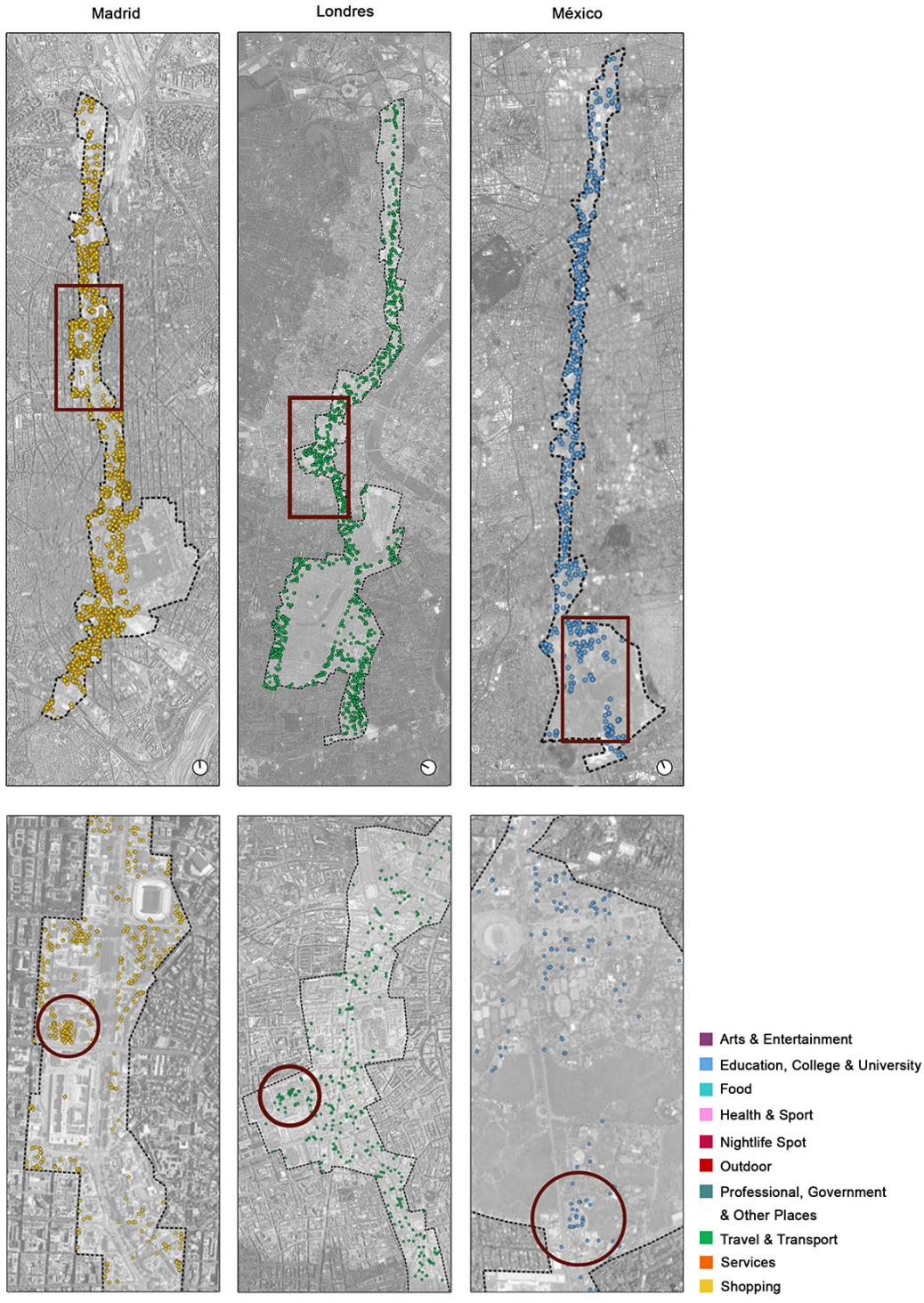

Figure 13. Visualization of data by categories. Source: Authors.

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social use at a human scale (AEUBAEUB, 2015, p.133). However, obtaining updated data for this type of detailed diagnoses implies an important challenge (da Cruz et al., 2020). This study faces this difficulty, using data from the Google Places social network and proposes a general grouping of urban activities in ten categories. Nevertheless, it could all consider a second level of grouping by tag or type of activity by cell, allowing a greater granularity for specialization diagnoses and/or lack of establishments and services of a given sector. Likewise, research that addresses matters related with the perception and urban vitality would be benefitted from this type of detailed analysis. For example, it has been shown that, although there is a good mixture of activity in the case of the MX axes, it is necessary to reevaluate the amount and proximity of these, considering the population density to guarantee a correct distribution and balance that promotes the self-containment and functional self-sufficiency of the area (AEUBAEUB, 2015, p.229). Moreover, it is this axis out of the six analyzed, where commercial and food activities dominate, activities that provide a good amount of information and sensorial stimuli to the passersby through their "soft facades" (Gehl & Svarre, 2013, p.77), unlike the NY axis, where the Health and Sport category is greater than the number of commercial establishments. Another consideration that emerges from and is related to the use of the public space would be crime prevention through urban design – CPTED – *Crime Prevention Through Environmental Design* – and self-surveillance by guaranteeing the passing through and recurrent stay of people in the urban space (Newman, 1972). For example, in the MX axis, the supply of activities related to nightlife and arts and entertainment are negligible in comparison with the case of PA.

Other matters related to land uses and its morphology with the urban activities they hold are also shown. In this sense, a large scale urban green space is identified in all the cases alongside the axis, around which the diversity of activities tends to drop. Likewise, although predictable, since in the European and American city, the form and role are interrelated matters (Hillier, 1996, 0.43), the results show a clear relationship between the predominant type of activities of an area and its morphology, being able to confirm that certain categories of economic activities have spread in areas whose physical structure and makeup allow it. For example, in central urban fabrics a greater presence of activities related with restaurants or shops close to the ground floor and professional services on higher floors is identified, while in the periphery areas, large facilities like universities, hospitals or shopping centers are located, like the university campus of UNAM in Mexico or La Paz Hospital in Madrid.

VII. CONCLUSIONS

The metropolitan axes, especially those that cross the urban center, represent spaces of opportunity as urban activity corridors that connect and structure the diverse sections that flow along their route. For the analysis and comparison of these metropolitan axes, just as for any study that intends on addressing the metropolitan scale, it is essential to not sidestep the lack or non-existence of databases, standardized and updated on the same recording date. In this sense, one of the more relevant contributions of this research is the methodological approach that uses the geolocated data of Google Places to functionally characterize six metropolitan axes: New York, Paris, London, Mexico City, Madrid and Barcelona. The comparison between these great structuring axes has allowed identifying similarities and differences regarding the density, diversity and patterns of localization, concentration and specialization of the economic activity.

As for the density of activities, a certain concentration is seen in the central sections and, in general, a spread in the peripheral areas. In respect to the diversity of activities, there is an important mix and complementarity of uses, even in areas whose functional imaginary is traditionally tied to very specific uses, like shopping on Rue Rivoli in Paris or entertainment on Brooklyn Avenue in New York. The European cases stand out in this aspect, benefitting from a greater mix of uses.

In general, the results ratify the hypothesis that the chosen sections are urban centrality areas since they include, to a greater or lesser extent, administrative activities, of innovation and research, of diffusion and emission, of exchange and meeting, ludic and symbolic (Terrazas, 2004, p. 253). Furthermore, the method has allowed confirming very particular matters, like, for example, that in the MX axis, with lower density of activities compared to the population density, there is a greater number of innovation and research activities, activities dense in knowledge (AEUBAEUB, 2015, p. 229), while the PA axis, which heads the list in density of activities for every 100 linear meters, it does not include records in this category.

All of the above demonstrate the potential of the Google Places social network as a source of global

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information for urban studies at a metropolitan scale, and the pertinence of running diagnostics about the offer and distribution of economic and urban activities that allow designing strategies seeking a better planning and management of the metropolis.

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PÁG. 80 - 97
ISSN 0717 - 3997 / 0718 - 3607

Recibido: 08-07-2020
Aceptado: 16-11-2020

THE ROLE OF LOCAL GOVERMENTS IN THE GOVERNANCE OF WETLAND PROTECTION:

THE CASE OF THE PICHICUY WETLAND, CHILE

EL ROL DE LOS GOBIERNOS LOCALES EN LA GOBERNANZA DE PROTECCIÓN DE HUMEDALES EL CASO DEL HUMEDAL DE PICHICUY (CHILE)

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PÁG. 98 - 111
ISSN 0717 - 3997 / 0718 - 3607

DOI: https://doi.org/10.22320/07183607.2020.23.42.08

Los humedales son ecosistemas que están desapareciendo, principalmente, a causa de la actividad urbana, industrial y de su vulnerabilidad ante los efectos del cambio climático. En Chile se han generado normativas e iniciativas para su protección, las que están condicionadas por las influencias, intereses e interrelaciones de los actores involucrados en el sistema de gobernanza. Esta investigación analizó el caso del humedal de la localidad de Pichicuy, actualmente administrado por la Municipalidad de La Ligua, e indagó en el rol de los gobiernos locales en la gobernanza para la protección de humedales considerando la participación de la red de actores de diferentes esferas y escalas territoriales. Se utilizaron, para tal labor, métodos mixtos de investigación social, analizando las influencias, intereses, tipos de relación y medidas de centralidad a partir del Análisis de Redes Sociales y la plataforma UCINET 6. El gobierno local de La Ligua desempeña, a través de su Departamento de Medio Ambiente, roles relevantes en la gobernanza para la protección del humedal: (1) propiciando apoyo político para gestionar e implementar acciones sobre el humedal; (2) actuando como intermediario entre los actores de diferentes esferas de la sociedad; y (3) liderando alianzas con actores de escalas superiores. Estos roles se robustecen por el apoyo y recursos proporcionados por los actores de la red con alto interés e influencia en la protección del humedal. No obstante, existen desafíos en la dinámica municipal, entre ellos, la necesidad de atraer e involucrar más fuertemente al Concejo Municipal, ya que tiene una alta influencia en las decisiones del gobierno local. Es relevante fortalecer la gobernanza para la protección de humedales en localidades pequeñas y rurales, para lo cual el gobierno local debe jugar un rol muy importante, por ejemplo, mediante el reconocimiento institucional del humedal y facilitando la participación de actores de escala local.

Palabras clave: gestión municipal, gobernanza, actores sociales, protección, humedales.

Wetlands are ecosystems that are disappearing, mainly due to urban and industrial activity and their vulnerability to the effects of climate change. In Chile, regulations and initiatives for their protection have been created, which are conditioned by the influences, interests and interrelationships of the players involved in the governance system. This research analyzed the case of the wetland located in Pichicuy, currently administrated by the Municipality of La Ligua. It researches in greater depth the role of local governments in the governance of wetland protection, considering the participation of the network of players from different spheres and territorial scales. Mixed methods of social research were used to analyze the influence, interests, types of relationship and centrality measures using the Analysis of Social Networks and the UCINET 6 platform. The local government of La Ligua performs, through its Environment Department, roles that are relevant for the governance of the wetland: (1) gaining political support to manage and implement actions about the wetland, (2) acting as an intermediary between the players from different spheres of society, and (3) leading alliances with higher-scale players. These roles are strengthened by the support and resources provided by the players of the network with high interest and influence in the protection of the wetland. However, there are challenges in municipal dynamics, for example, the need to more strongly attract and involve the Municipal Council, since it has a great influence on local government decisions. It is relevant to strengthen governance for the protection of wetlands in small and rural locations, for which the local government must play a very important role, for example, through institutional recognition of the wetland and facilitating the participation of players at a local scale.

Keywords: municipal management, governance, social players, protection, wetlands

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I. INTRODUCTION

Wetlands are ecosystems where land and aquatic environments meet, promoting important ecosystemic services, like housing biodiversity and migratory birds, reducing disaster risks on containing floods or strengthening the local cultural identity, among others (Hassan, Scholes & Ash, 2005; Valdovinos, 2006). In this way, wetlands have been defined as valuable socio-ecological systems yet, however, they are vulnerable to the constant pressures of human activities and the effects of climate change (Craft et al., 2009; Delgado, Tironi-Silva & Marín, 2019). In Chile, for example, the overexploitation of surface and underground water, the changes in rainfall patterns and the retreat of glaciers harm the state of wetlands (Ministry of the Environment, 2019). This, added to urban growth that destroys wetlands up and down the country (Mallega, Sánchez, Riquelme & Herreros, 2019). In the local context, these ecosystems are rarely valued by local authorities and are continuously disappearing, being replaced by dwellings and industries (Barbosa & Villagra, 2015; Novoa, Rojas, Ahumada-Rudolph, Sáez, Fierro & Rojas, 2020).

To promote wetland protection, it is necessary to look into the governance processes, getting to know the articulation mechanisms between public, private and civil society players; their willingness, attributions and types of relationship (Delgado, Bachmann & Oñate, 2007). This governance is defined by the interaction among players from different territorial scales (national, regional, provincial, communal and local) and conditioned by the "rules of the game" of the regulations and legislation that affect the state of these ecosystems (Pastrana-Buelvas & Pacheco-Restrepo, 2010). At a local scale, the regulatory and institutional arrangements of local governments are just as relevant as those of a regional and national nature (Amstein, 2016). In Chile, the local governments are represented by the Municipalities, which can propose, approve and supervise regulatory instruments in the area of their jurisprudence (Fuentes, Allard & Orellana, 2007), which is why they are important players when it comes to making decisions about the territory and the environmental projects (Ruling N°82.960, 2013).

In Latin American countries, there are cases of local governments that have acted favorably to protect wetlands through the strengthening of policies, decentralization of administration, collaborative management and the formulation of alliances with community organizations (Freile & Rodas, 2008; Moreno-Casasola et al., 2019; Moschella, 2012; Pastrana-Buelvas y Pacheco-Restrepo, 2010). However, both in Chile and in other countries of the region, difficulties have been seen in the articulation of players and in the process of governance for the protection of wetlands, such as the lack of information and experience of local governments to take on environmental competences, which is added to the financial limitations that worsen in smaller and more rural municipalities (Cárdenas, 1995; Freile & Rodas, 2008; Fariña & Camaño, 2012).

This article analyzes the roles of local governments in the governance processes for wetland protection, using as a case study, the small locality of Pichicuy, which is part of the Municipality of La Ligua, in the Valparaíso Region. A Social Network Analysis was applied to a cluster of public, private and civil society players, considering attributes of a territorial scale and society sphere, as well as their relations, interests and influence. As a research hypothesis, it was considered that the most relevant local government roles correspond to key matters in the governance (Delgado et al., 2007), like providing political support, favoring the articulation between players and providing sustainability to possible alliances. With this, a reflection is presented about the roles of local governments and from there some recommendations are prepared.

II. THEORETICAL FRAMEWORK

Wetland protection in Chile

The protection of wetlands arises and is promoted from the international sphere with the signing up to the Ramsar Convention through Supreme Decree N°771 from 1981 of the Ministry of Foreign Affairs. Starting from this, the country currently has 16 Ramsar Sites, 9 of which are found within the State's National Protected Wildlife Areas System (SNASPE in Spanish) managed by the National Forestry Corporation (CONAF, in Spanish) (Ramsar, n.d.).

Policies, regulations and strategies have been created which, on the whole, indirectly apply to wetlands and refer to certain components like water quality or the protection of wildlife species (Möller & Muñoz-Pedreros, 2014). On the other hand, wetland protection is possible with figures that are available to public institutions like the National Assets Ministry through the Protected National Assets or the Ministry of Environment with the Protected Coastal Marine Areas (Sierralta, Serrano, Rovira y Cortés, 2011), also through private efforts like the case of the Salinas de Pullally Nature Sanctuary – Longotoma Dunes (Council of Ministers for Sustainability, 2019).

In general, wetlands without protection figures, have a lack of recognition in the national regulations, which favors a scenario of systematic degradation of these ecosystems through the urban and infrastructure growth that is happening in all the regions of Chile (Mallega et al., 2019). Facing this, initiatives like the National Wetland Protection Plan 2018-2022 emerge, and the recently published Law N°21,202 from 2020 of the Ministry of Environment applied to urban wetlands, although the effects of the latter are not yet visible. In addition, there is a bill to create the Biodiversity and Protected Areas Service, which could increase wetland protection; however, for years it has been in an inconclusive parliamentary process (Bulletin N°9.404-12, 2014).

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In this way, it is clear how insufficient and disperse wetland protection in Chile is (Fariña & Camaño, 2012), leaving unprotected even a multiplicity of those located in wild and rural areas without official recognition, in particular those located in the Central area of Chile (Figueroa, Suárez, Andreu, Ruiz y Vidal, 2009). This can be confirmed in the Valparaíso Region, where only 10.5% of the wetland surface is protected (Ministry of Environment, 2019).

Governance for wetland protection

Governance is a decentralized and participative social organization model for decision-making that, in environmental terms, seeks a balance between the conservation of nature and the development of territories (Barriga, Corrales, Prins y Campos, 2006; Delgado et al., 2007). This concept promotes the adoption of bottom-up decisions, where local governments have the capacity to design and manage initiatives in line with their local needs (Esparcia, Escribano & Serrano, 2015). In this sense, local institutions can govern themselves and manage their own wetland ecosystems, enhancing the value of local knowledge as a protection mechanism (Bawa, Rai & Sodhi, 2011).

The processes of governance around wetlands have been analyzed through the characterization of the structure of the network of players involved in the protection, identifying a diversity of relations (Velázquez & Aguilar, 2005). Progress has also been made in understanding aspects of the distribution of power and responsibilities at the different levels: local, communal, provincial, regional and national Davidson y De Loë, 2016; Reyes-García, Andrés-Conejero, Fernández-Llamazares, Díaz-Reviriego y Molina, 2019).

Research by Navarro (2017) regarding urban wetlands in the city of Concepción, inquired into the relations of coordination, technical support, political support, financing, monitoring and antagonism, among the players involved in wetland protection. In this way, he identified the relevance of the associations of technical and political support among civil society, academia and local governments, and the challenges there are regarding public-private coordination.

Capacities of local governments in wetland protection

Strictly speaking, local governments can control urban growth and avoid the loss of wetlands through their territorial planning and local ordinances (D.F.L N°1, 2006; (D.F.L. Nº 1, 2006; Martínez, López, Rojas, Qüense, Hidalgo y Arenas, 2020), which must be flexible and coordinated with like-minded institutions and organizations to generate an effective support of the urbanistic and conservation laws ((Rojas, Munizaga, Rojas, Martínez y Pino, 2019). The new Law, N°21,202 demands that municipalities generate recognition and ordinances for the protection of wetlands in urban areas (Mallega et al., 2019).

There are some cases in which specific ordinances have been decreed to protect wetlands, declaring them as Municipal Nature Reserves (RENAMU in Spanish), just as has happened in the communes of Arica in the Region of Arica and Parinacota and in Cartagena in the region of Valparaíso. The latter, also declared the wetland of Cartagena as a National Protected Asset, initiative that arose from the alliance with the National Assets Ministry, giving it its state character (Amstein, 2016).

Another example, is the project led by the Municipality of Valdivia in the Los Rios Region, which has been one of the pioneers in local wetland protection regulations, even ending up forming a technical committee between public institutions and civil society for its protection (Lara, 2017).

III. CASE STUDY

This research made a case study of the coastal wetland of Pichicuy. Unlike other sites in the central part of Chile, urban and industrial development are not strongly present as of yet in this wetland (Figueroa et al., 2009; Chile Ambiente, 2016), reason why, guaranteeing its protection is an opportunity for its long-term conservation. Likewise, the study of its governance system allows contributing with relevant information for local governments and the different players interested in the protection of this and other coastal wetlands of similar social, political and demographic conditions.

Pichicuy is a small locality of the commune of La Ligua, in the province of Petorca, on the northern end of the Valparaíso Region, Chile (Figure 1). This locality is characterized on having a fishing cove and around 530 inhabitants (National Statistics Institute, 2019).

Pichicuy wetland is located on State land, which is why its administration is handled by the National Assets Ministry. According to the survey of the National Assets Ministry (2015), this is unit N°50886, with a surface area of 18.85 ha, marked out as can be seen in Figure 1. This wetland is located at the southernmost point of the locality of Pichicuy and is an estuary lagoon of the mouth of the Huaquén estuary (Chile Ambiente, 2016), comprising dunes and water mirrors as can be seen in Figures 2 and 3.

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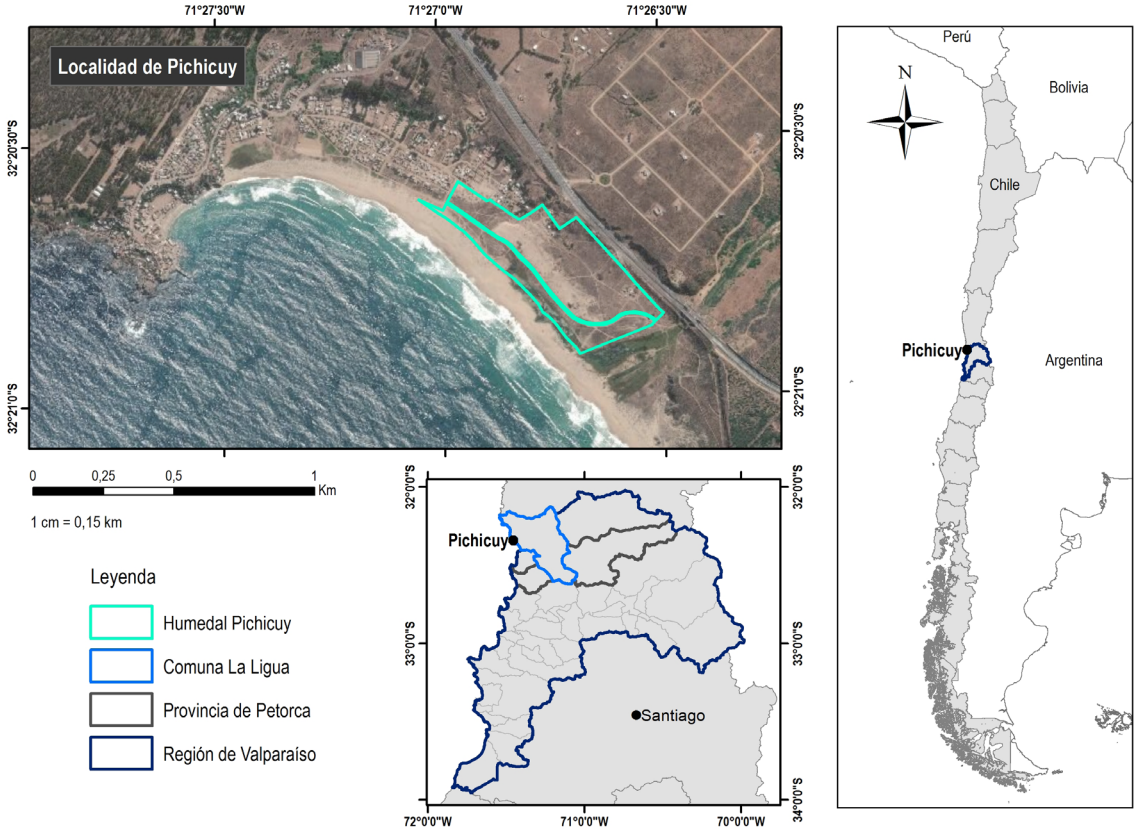

Figure 1. Area of Study: Locality of Pichicuy. Source: Geospatial Data Infrastructure, 2019; Ministry of National Assets, 2015.

Figure 2. Pichicuy Wetland, dunes. Source: FPA 5-G-025-2017, 2017.
Figure 3. Pichicuy Wetland, water mirrors. Source: FPA 5-G-025-2017, 2017.

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This wetland is considered as a relevant case for the analysis of governance, given that its protection was initially promoted in the context of the Chile-Mexico Joint Cooperation Fund of the Chilean International Cooperation Agency (AGCI) (Ministry of Environment, 2015) and was officialized by the Ministerial Regional Secretaries (Seremi) of Environment and National Assets of the region of Valparaíso, who set up agreements with the Municipality of La Ligua and the La Ligua Communal Environment Council (CAC).

Said agreements deal with the granting of the wetland use concession to the local government, along with the National Protected Asset declaration, the establishment of a management plan, the creation of a specific local ordinance on wetland protection and measures like the installation of perimeter infrastructure and hiring of security guards (Ministry of Environment, 2016).

IV. METHODOLOGY

This research used qualitative and quantitative social research methods (Hernández, Fernández & Baptista, 2014), using methodological references of the studies of Davidson & de Loë (2016), Maya Sen, Singh, Varma, Sharma y Kansa (2019) and Reyes-García et al. (2019). The local government and players from the public, private and civil society were considered, who were consulted during November-December 2017 and January-February 2018.

A Social Network Analysis (SNA) was made based on the references of Clark (2006) and Velázquez & Aguilar (2015) in order to identify the roles of local governments in governance for wetland protection. In this, they examined: (1) influence and interest, (2) types of relationship and (3) centrality in the network of players; and finally, comprehensively through a critical analysis, the roles of local government in the governance of the Pichicuy wetland were identified.

According to Clark (2006), the network comprises a) players or nodes and b) relationships or ties, which serve to calculate the centrality measures using UCINET 6 tools and its Netdraw platform.

Identification of players

The players considered in the SNA were those with competences and/or participation in the protection of the wetland at a local, communal, provincial and regional scale (Reyes-García et al., 2019). The players were identified using the snowball technique (Martínez-Salgado, 2012).

A semi-structured interview (Hernández et al., 2014) and a questionnaire were applied to 17 players face-to-face, to qualitatively characterize the interactions between players and to quantitatively analyze the ties and nodes of the governance system (Davidson & de Loë, 2016), paying special attention to the results regarding local government. These consultations were recorded and transcribed using informed consent (Miguélez, 2016).

Influence and interest

The participation of the local government and players in the network was estimated based on the level of influence over decision-making regarding the wetland and the level of interest estimated from the actions carried out in the wetland. These levels were defined for each player for themselves and for all the others using a Likert scale (Asún, Rdz-Navarro & Alvarado, 2016) with values of 0 to 4, 0 being does not know/does not answer, 1 with no influence/with no interest, 2 with low influence/with low interest, 3 with medium influence/with medium interest and 4 with high influence/with high interest. The final values were calculated using an arithmetic mean.

Types of relationships

The types of relationship describe the ties between the local government and the other players of the network, for which each player was asked about the following two-way relationships and their frequency: coordination, technical support, political support, financing, monitoring and antagonistic (Maya et al., 2019; Navarro, 2017).

Centrality measures

The centrality measures correspond to the degree of connectivity of the network, the type and number of interactions, and the players with the highest amount of relationships (Velázquez & Aguilar, 2005). This allowed identifying the key (degree of centrality) and intermediary (degree of intermediation) players of the network using the UCINET 6 software tools.

V. RESULTS AND DISCUSSION

The Players Social Network

The network of the players involved in the protection of the Pichicuy wetland comprises 20 players where those from the public sphere (14) predominate, over civil society (5) and private (1) ones (Figure 4). Regarding the territorial scales, a similar distribution was distinguished between the regional (4), provincial (6), communal (5) and local (5) scale. From these, two represented the La Ligua local government: Department of Environment, Cleaning and Decoration (hereinafter Department of Environment) and the Municipal Council.

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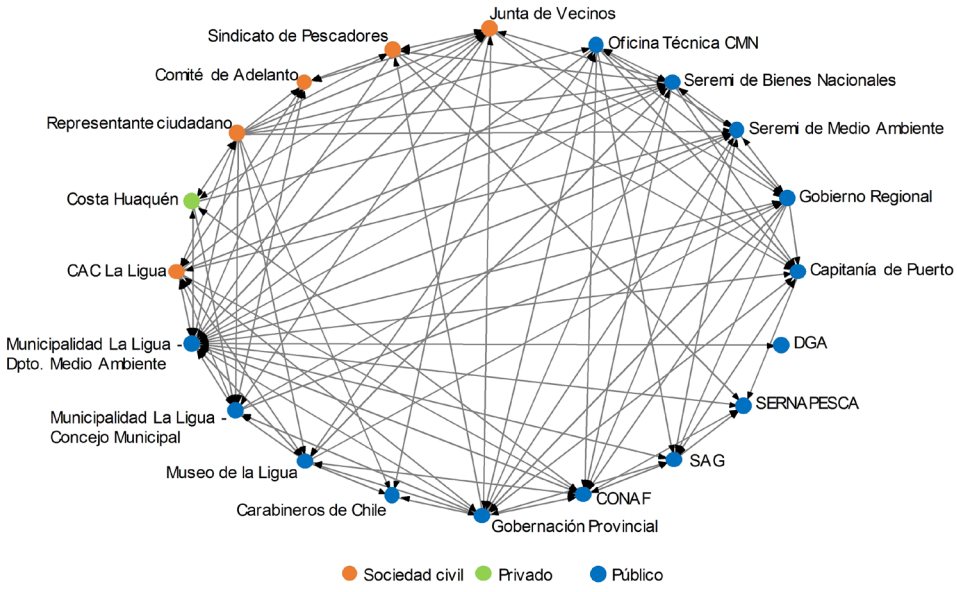

Figure 4. Network of players for the protection of the Pichicuy wetland. Source: Own preparation, UCINET 6, 2020.

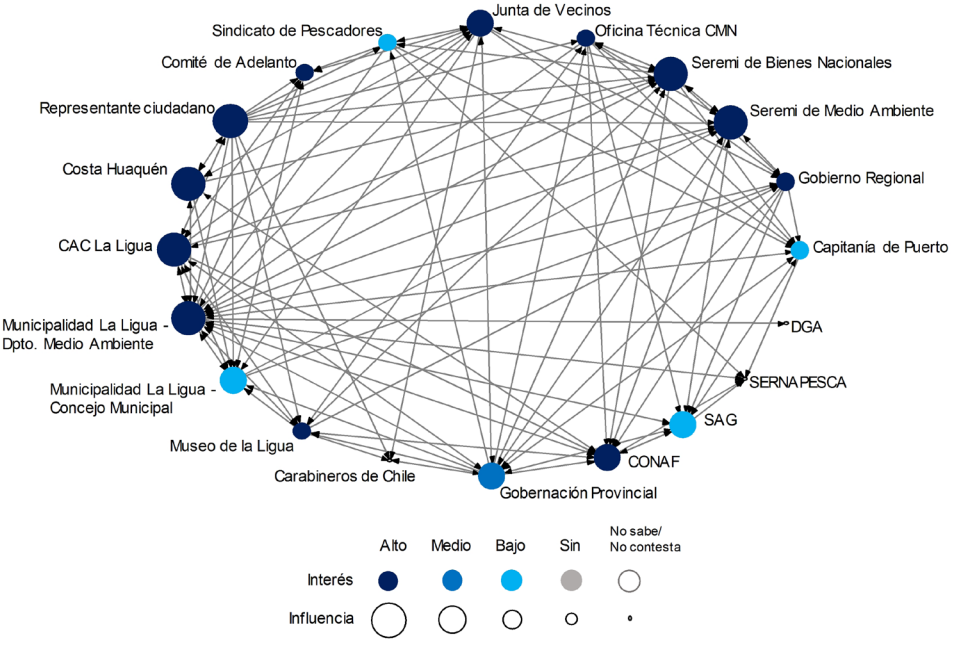

Figure 5. Levels of influence and interest that the players have regarding the protection of Pichicuy wetland. Source: Own preparation, UCINET 6, 2020.

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Political willingness backed for the protection

In this case study, the local government demonstrated a significant political willingness manifested in the agreements and commitments taken on to protect Pichicuy wetland (Ministry of Environment, 2015). However, the influence and interest about the protection of the different municipal departments varied (Figure 5), the Department of Environment had a high influence and interest, while the Municipal Council had a medium level of influence and a low interest for the protection of the wetland.

As can be seen in the following quote, the regional authority assigned key importance to the interest of the local governments to start protection processes, in particular through the role these must take on in the local upkeep and management of the protection initiatives that come from regional collaboration (Jorquera, 2011).

> Here the role of the councils is tremendously important. Pichicuy has a really good alliance through the Municipality (La Ligua). It is fundamental that the municipality is interested, because many of them are voluntarily going to manage these places (Local Environment Officer, interview 05/12/2017, Valparaíso).

However, the Municipal Council declared themselves distant regarding the wetland's protection, with the levels of interest being equivalent to players like the Farming and Agriculture Service (SAG), the Harbor Master and the Fisherman's Union (Figure 5), who manifested developing limited or no initiative despite their faculties related to the wetland.

In the study of Navarro (2017), the Municipal Council of the Municipality of Concepción had a low level of influence and interest regarding wetlands, which complicated the actions of the Environment Department that required their approval to plan and carry out protection actions. This may be influencing the high urbanization and the scarce protection wetlands there are in the metropolitan area of Concepción, where urban growth figures of up to 238% are expected along with a 32% loss in wetland areas (Rojas et al., 2019).

Although urban growth and wetland loss in Concepción is significantly greater than the case of the Pichicuy wetland, the internal disagreements of local governments were similar. For example, it has not been possible to have a stable municipal officer in the Environment Department in charge of the protection of Pichicuy wetland, situation where the Municipal Council can intervene given their faculties in the municipal structure (D.F.L. N°1, 2006).

> From 2010-2011 when the departments were created, those in charge of the (Environment) department have been in the position for a short time, two-three, only one year. We had a way to work and now once again, the head is going (…). Hopefully the municipality in the future has a person directly linked to the wetland and this doesn't happen again (Citizen representative, interview 13/02/2018, Pichicuy)

The Communal Regulatory Plan (1980), regarding current territorial planning instruments, does not include the locality of Pichicuy and, therefore, does not recognize the Pichicuy wetland. However, the locality is defined as an urban extension area by an Intercommunal Regulatory Plan (1965 and its modification, 1996). This aspect even opens up the possibility of urban growth in the locality of Pichicuy and, therefore, to one of the main threats for coastal wetlands (Novoa et al., 2020).

This shows how in Chile, local territorial planning is a debt, especially in the rural communes and in the official recognition of relevant areas for the protection of wetlands (Mallega et al., 2019; Maturana, Fuenzalida, Arenas y Henríquez,2017). This may be attributed to limited municipal financing, to the competition to obtain public investment funds and that to the fact that the Municipal Council defines priorities that, in many cases, do not consider wetland protection, but rather health, education or urban infrastructure (Amstein, 2016; Orellana & Marshall, 2017).

Delamaza (2011) indicated that placing issues on the public agenda in many cases depends on social sensitivity, since these scale in priority more as a response to the needs of the citizenry when these are demanded. Along this line, the civil society players with high interest (Figure 5) like the La Ligua Communal Environmental Council (CAC), the Citizen Representative and the Advance Committee, have demanded efficiency in the administration and compliance of the wetland protection measures (Jorquera, 2011).

In this case study, a relevant political willingness of the local government was identified, based on the interest of the Environment Department to raise and maintain the wetland protection efforts (Barriga et al., 2006), which is strengthened with the support of civil society, private and public players, who are influential at different scales and with have high interest in the protection (Espinoza, 2019; Jorquera, 2011). These aspects are discussed in the following sections.

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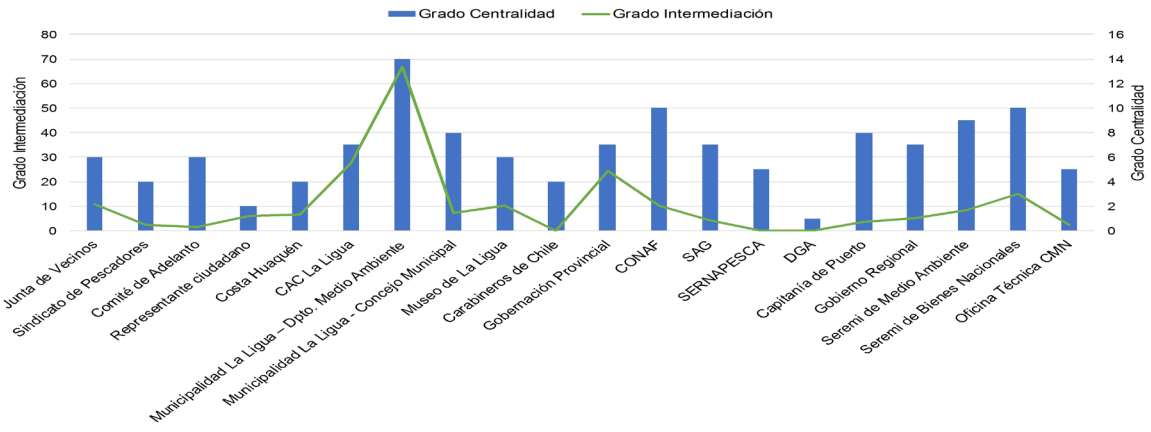

Figure 6. Centrality measures for the network's players. Source: Own preparation, UCINET 6, 2020.

Intermediary in the articulation of the network of players

In the case of the Pichicuy wetland, it was confirmed that another relevant role of local government is as an intermediary in the relations of the public, civil and private players. Also, the Environment Department acted as intermediary in the bottom-up articulation of players (Esparcia et al., 2015), which is considered as important to strengthen the collaborative management of wetland protection (Bawa et al., 2011; Freile & Rodas, 2008).

Figure 6 shows that the local government, through its Environment Department, obtained the highest degree of centrality and intermediation in the network of players, being even higher than those of the provincial and regional public institutions, and the players with high influence in ecosystem protection like the National Forestry Corporation (CONAF) or the Ministerial Regional Secretary (Seremi) of Environment.

This role is confirmed by the private player, Costa Huaquén, who indicated having sought coordination with civil society players through the Environment Department to carry out protection actions. An articulation between local government and the private sector favoring protection was seen in this way, which can facilitate the consensus of the diverse interests of the players (Jorquera-Jaramillo et al., 2012). This is considered as a particular case in the national context, as in general, there are obstacles regarding the participation of private players in the protection because of their dependance on their personal interests (Rojas et al., 2019).

From the sphere of civil society, the Citizen Representative and the La Ligua CAC player are related to local government and with the public players, seeking to supervise compliance of the agreements on wetland protection, and with this strengthening participation in the public administration (Martínez, 2016).

> Those from La Ligua's CAC have had a high influence, they take part in all the administration that's been done and the supervision there's been about the commitments the Municipality (of La Ligua) and National Assets (Local National Assets Authority) have taken on for Pichicuy wetland (Citizen representative, interview 13/02/2018, Pichicuy).

This role of the intermediary could also be seen in the case of the Municipality of Valdivia, where the local government provided a space for articulation and dialog regarding the wetlands on facing the constant pressure of the citizenry, managing to get different organizations from civil society and public services to take part in agreeing upon protection actions (Lara, 2017).

Leadership in agreements with higher scale institutions

The third role of the local government identified in the case of Pichicuy was to lead a multiscale public administration and to facilitate the adoption of regional public protection policies in the local context (Espinoza, 2019; Jorquera, 2011; Moreno-Casasola et al., 2019), especially the interventions promoted by the Local Authorities for Environment and National Assets from Valparaíso.

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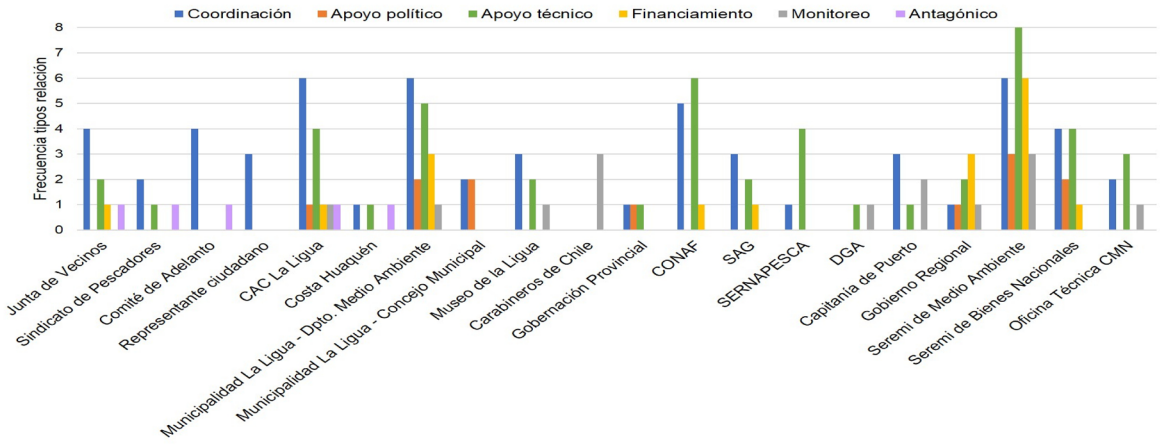

Figure 7. Frequency of types of relationship between the network's players. Source: Own preparation, 2020.

Recent studies, like that of Espinoza (2019), show that in Chile there is a lack of governmental intersectorial articulation to ground the regulatory policies and instruments for the protection of ecosystems from a national to a local scale. This still represents a great challenge for the country due to the hierarchical, centralized and disperse nature of the sectorial institutions related to environment matters (Espinoza, 2019; Heinrichs, Nuissl y Rodríguez Seeger,2009).

In the case of the protection of Pichicuy wetland, a technical round-table was set up with players from the regional and provincial public sector with influence in environmental matters. The Environment Department played a leading role in this discussion as it is the only communal level player who took part and is the entity given the responsibility to administer the wetland, to close the protection plans, as is presented in the following quote.

> During the last few years we've been working, we set up a technical round-table which the Municipality (La Ligua Environment Department) and the Local Health Authority take part (…) Even CONAF took part, the DGA (Water Authority) too (…) we have handed over administration to the Municipality and while the round-table discussions progress, giving it in a long-term concession to the Municipality with a specific use and an associated management plan (Local National Assets Authority, interview, 04/12/2017, Valparaíso).

It is considered relevant that players from higher levels act as guarantors of agreements and the coordination of protection (Barriga et al., 2016), thus giving an institutional acknowledgment about the importance of the wetland (Moreno-Casasola et al., 2019). In this case study, the support of regional players allowed the local government to access tools that facilitate the sustainability of the ecosystems (Martínez et al., 2020), for example, technical support to assess the ecological status of the wetland, just as can be seen in Figure 7.

In Figure 7, it can be seen that the coordination was one of the more frequent relationships in the network. With this, regional players like the Local Environment Officer stood out with technical support, coordination and financing. From local government, the Environment Department stood out above the Municipal Council, maintaining alliances with regional players to cover both the technical and financing shortcomings, aspects that are quite common in domestic municipalities (Orellana & Marshall, 2017).

A concrete technical support action fostered by regional institutions to the local government was the provision of an international cooperation fund to address wetland issues, promoting the development of capacities that facilitate local government and local players in the implementation of the protection for Pichicuy wetland. This can be confirmed, for example, with the installation of control infrastructures and the allocation of security guards (Figure 8 and Figure 9).

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Figure 8. Pichicuy Wetland entrance without control and access infrastructure, 2017. Source: FPA 5-G-025-2017, 2017.
Figure 9. Pichicuy Wetland entrance with control and access infrastructure, financed by local government, 2018. Source: Own preparation, 2018.

VI. CONCLUSIONS

This case study shows how important local governments can end up being in wetland protection in Chile. The Municipality of La Ligua, in particular from the Environment Department, manifested a significant political willingness (due to their high interest and influence) to administer the protection actions agreed with the Valparaíso National Assets and Environment authorities. Likewise, the local government exercises the role of intermediary between public, private and civil society players, with special attention on involving the participation of local players; along with a fundamental leadership to set up alliances with regional public players, thus allowing that the regional protection policies reach the local scale.

In this way, three roles of the La Ligua local government were identified, that provide a positive scenario for governance processes, favoring the articulation and coordination of players for the protection of Pichicuy wetland. In concrete terms, the local government managed to maintain the wetland usage concession granted by the National Assets authority, build protection infrastructure and provided security personnel for its upkeep. This means that, if the local government manages to establish continuous and stable interactions with key players of the network on multiple levels, it can obtain the technical and financial support needed for the success of wetland protection efforts.

On the other hand, in this case study, similar challenges to those described in other cases in the country were found. For example, the need to encourage the interest and participation of key players in municipal administration, like the Municipal Council, to position wetland protection on the municipal agenda and to encourage territorial planning focused on explicitly recognizing the environment, social and ecosystemic value of wetlands at a local level. According to the revision of the literature, these challenges seem to be common at a Latin American level and emphasize the need of a decentralization in decision-making, along with a greater articulation with the interested players.

It is expected that the recent Law N°21.202 on the protection of urban wetlands strengthens the three roles of local governments examined in this research, permitting an empowerment of the municipalities over the administration of wetlands and their greater acknowledgment in the territorial planning instruments and local regulations. In this sense, it is relevant that the local wetland protection covers the problems of urban growth and considers the effects of climate change that threaten the status of wetlands. It is no less important, that local protection reaches the localized wetlands in rural territories outside official protection and the area of action of the regulatory plans, as in these territories, there are still sites of great value and, therefore, with high conservation potential.

It is worth stating that there has been progress in the protection of the Pichicuy wetland by the Municipality of La Ligua in the period after this research, for example, the launch in April 2018 of a work plan for its conservation and the passing of a Municipal wetland protection Ordinance (Decree of the Mayor's Office N°388 from January 2019). However, the declaration of it as a National Protected Asset is still pending.

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Finally, it is important to strengthen and guarantee the continuity of the roles of local governments in governance processes for wetland protection. Thus, the institutionalization is suggested along with greater depth of the wetland protection actions by means, for example, of the declaration of a Municipal Nature Reserve or National Protected Asset, alongside the strengthening and consolidation of participative governance with local players for its management.

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EL ROL DE LOS GOBIERNOS LOCALES EN LA GOBERNANZA DE PROTECCIÓN DE HUMEDALES. EL CASO DEL HUMEDAL DE PICHICUY (CHILE)
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VIII. AGRADECIMIENTOS

We would like to thank the willingness of representatives from the institutions and organizations in answering the interviews. Special thanks are given to Jacqueline Torres, Nibaldo Hernández and Lautaro Hernández for forming part of the research team in Pichicuy – La Ligua and for all their help in this research. This publication is dedicated to the memory of Nibaldo Hernández, "Citizen Representative", who was an empowered person and very passionate about his locality and Pichicuy wetland. Without him, the protection of the wetland would not have progressed to what we see today, demonstrating how important it is to have local people committed to the protection of the ecosystems.

Recibido: 11-05-2020
Aceptado: 12-11-2020

TERRITORY AND TERROIR

CASES OF SMALL-SCALE WINE PRODUCTION IN THE CENTRAL SOUTH PART OF CHILE[1]

TERROIR Y TERRITORIO
CASOS DE LA PEQUEÑA VITIVINICULTURA EN EL CENTRO SUR DE CHILE

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La vitivinicultura es parte del paisaje chileno: en tres valles perviven formas socioecológicas tradicionales de vitivinicultura, cuyas prácticas representan formas hacer y saber que cuestionan y negocian con los procesos de la gran industria. En el presente artículo se expone el trabajo realizado con cinco organizaciones en los valles de Marga-Marga, Lontué e Itata, a través de entrevistas y cartografía social, con el fin de relevar los conflictos socioterritoriales, las prácticas productivas y económicas de los pequeños productores y sus estrategias de inserción de mercado. En definitiva, la sostenibilidad de estas experiencias se juega en recuperar el gusto por un vino local, de sabores diversos, arraigados en las condiciones de los territorios.

Palabras clave: vitivinicultura campesina, Chile, paisaje, *terroir*, socioecología.

Wine production is part of the Chilean landscape. In three valleys, traditional socioecological forms of wine production still prevail, practices that represent ways of doing and knowing that question and negotiate with large industry's processes. Work was made with five organizations in the Marga-Marga, Lontué and Itata valleys, through interviews and social cartography, revealing the socio-territorial conflicts, productive and economic practices of small-scale producers and their market insertion strategies. The sustainability of these experiences looks to recover the taste for local wine, different flavors, ingrained in the conditions of the territories.

Keywords: peasant wine production, Chile, landscape, terroir, socioecology.

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I. INTRODUCTION

Wine production is part of the landscape of central and central southern Chile. Despite the hegemony of agro-business, we have found in three valleys, traditional forms of wine production that continue to survive, ones that are substantially different to industrial production. We approached them with the question of how they have survived in an increasingly agroindustrial landscape, and whether their practices can represent answers to contemporary socioenvironmental problems. Our hypothesis is that peasant wines, and their local construction of the "terroir", constitute forms of doing and knowing that question, but also dialog with the processes hegemonized by the large wine production industry, representing local exercises of socioecological sustainability. The document, as a whole, dialogs specifically with the local literature on wine production, which has been focused on its historicity and current economic-political processes, describing the industry's processes of standardization, concentration and the foreign market focus (especially the work of Lacoste et al., 2015 and 2016 and other authors that we review in the following chapter). However, this literature does not go into depth on the matter of survival and condition of peasant wine production in contexts where agroindustry predominates. Broadly speaking, the text dialogs with the literature regarding the relationship between peasant agriculture and agroindustry (Goodman & Watts, 1997; Van der Ploeg, 2010, among others), and also with the literature on transition processes towards more comprehensive means of production (Goodman, DuPuis and Goodman, 2011; Escobar, 2016).

The text is supported by the FONDECYT REGULAR N°1190020 project "Communalization and Economic Heterogeneities: space for dialog about cases in central-southern Chile" that works with five organizations: The Marga-Marga Winemakers Cooperative in the Valley of the same name: the Caupolican Cooperative, in the Lontué Valley, and the organizations COPABIO, Viñateras Bravas del Itala and Ecoparra, in the Itata Valley. The text, starting from the conceptual tools of political ecology and rural sociology, observes three cases of wine production, describing the socioterritorial problems they face, as well as their socioecological targets and economic strategies that have allowed them to survive in an adverse context, and that we believe represent possible goals for sustainable wine growing. Overall, the text contributes to problematize a traditional activity that has been made invisible behind the large wine industry, and also, starting from the documentation of their practices, contributes to the discussion about more agroecologically sustainable means of production.

Background of Wine Production in Chile: francization, concentration and globalization

Chilean wine production goes back to colonial times (Townsend & Tiefenbacher, 2011) when early on, territorialized products stood out, like the asoleados of Cauquenes and Concepción (currently the Itata Valley) and the pajaretes of Huasco and Elqui (Muñoz, 2012). Both wines, fine, spirituous and sweet, with lower volume and higher prices, adjusted to the needs of small producers which, due to the poor roads, had difficulties taking their wines to urban centers (Lacoste et al., 2016). Until 1880, these wines were highly valued; however, after the Pacific War, their position amid elite consumption was displaced by imported products, Jerez and Port, favored because of lower tariffs and due to the ostentatious consumption of the post-war period (Lacoste et al., 2016). The case of pipeño, bulk wine, from the pais grape variety, ground by foot, fermented in open winepresses and conserved in small wooden barrels, and chicha, with less fermentation time was different. These are consolidated as products accessible to the working classes and the production space of the small vineyards (Lacoste et al., 2015).

The traditional wines were subject to the intervention by the National Agricultural Society that promoted the French enological paradigm. Pipeño was played down, describing it as "*a brutish wine*" (Lacoste 2015: 90). The large vineyards introduced varieties, oak vats, French technology and brought in enologists, like René F. Le Feuvre, professor of the Quinta Normal de Agricultura, whose slogan was "*making Chile the France of South America*". Their efforts standardized production, displacing the traditional wines in the national market (Briones, 2006). The import substitution industrialization policies after the second world war, promoted that these great vineyards covered domestic demand. After the Coup d'état in 1973, in the framework of the liberalizing reforms, the industry did an about turn to exports: by 1999 Chile exported 80% of its production and by 2004 was the fifth largest producer in the world. This led to a new modernizing and strongly concentrated wave that would encourage the connection of peasant wine production and the larger industry as grape providers (Crowley, 2000). In 1995, the regulations would accept wine production of table grapes (Ministry of Agriculture, 1995); with this the grapes of non-wine production enter the market, even fruit waste, bringing down the prices paid to suppliers (Letelier & Bustos, 2005). By 2014, the total surface area of wine production vines was 137,593 hectares. Exports for 2017 reached US$1,520.2 million, concentrated in three companies (Lima, 2015). This contrasts with that 64% of vine production takes place on sites under 5 hectares, mainly located in the Maule and

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Itata Valleys. That is to say, the concentration of exports is based on a small-scale wine production linked to the large industry through intermediaries that stores grapes and wine from small producers.

Thus, the major trends of domestic wine production can be summarized into: (1) a long background that harks back to colonial times; (2) a trend towards the francization of varieties and wine production styles, led by the large vineyards and government programs, and dynamized by a Europeanizing consumption; (3) segmentation between the small peasant production, that privileges the pais grape and follows traditional methods; and the industrial large scale industrial wine production, concentrator and homogenizer, both segments linked, unequally, through intermediaries; and a (4) growing integration with the international market.

II. THEORETICAL FRAMEWORK

Relational worlds, terroir and peasant economies

We see the territory starting from some conceptual tools of political ecology and rural sociology, in particular the categories of socio-natural co-construction and the analysis of peasant economies. Wine, like few products, reflects the socio-material pairing beneath it. Soil and climate, knowledge, practices and material culture are expressed in the aroma, texture and taste: the terroir. In recent years, some authors (Escobar, 1996, 2010; Latour, 1991) have modeled the interdependence, co-construction and coevolution between the social and the natural, understanding that natural, technological and human entities are linked in complex interrelations. A priori, these interrelations are symmetric and constitute the world we live in (Callon & Law, 1997; Murdoch, 2001; Latour, 2004). In this way, nature and culture do not appear as binary opposites, nor is the existence of a single nature assumed. On the contrary, the diversity of human discourses and practices are expressed in diverse socio-natures, even diverse ontologies, they connect players and processes in distributed and relational agencies (Escobar, 2016). From this vision, the things and the beings *are* their relations.

The landscape and its organoleptic expression, the terroir, are examples of this coordinated enaction. The landscape is the relationship between natural, historic and cultural aspects, reflecting the identity of the group that collectively builds it (Duhart, 2011), and the terroir synthesizes flavor and place. This, a combination of environmental (soil, climate, altitude, sun exposure, drainage, slopes, etc.) and cultural characteristics (tradition, knowledge, techniques, tools and procedures) which produce flavor and quality: the product represents and sells the place (Kaldjian, 2009). As such it can be a constructivist ensemble or be trapped in a fundamentalist prison. To overcome essentialism, Kaldjian (2009) states that, '*terroir*' is there, but it is not there' (p. 250), it exists only as a construction or collective agency for the experimentation, design and circulation of socio-natural commons.

Terroir is expressed in the different *denominations of origin* as exercises of the attribution of socially built quality (Zhao, 2005). This exercise can be made problematic by its silence regarding work matters, and laws (McIntyre, 2017) and due to the hiding of less visible social relations: a same territory may house diverse socioenvironmental ensembles, more and less fair and sustainable, that remain hidden under the territorial appeal. In Chile, the wines of peasant agriculture are appealing more and more to differentiated territorial identities to make their valleys and varieties visible, while the large-scale wine industry has identified in the denominations of origin, a new market niche.

Therefore, terroir makes a difference. For Escobar (2016), facing modern homogenization, we can see alternative spaces like the peasant economies, with their own rationalities and practices, that represent exercises of ontological and economic difference. Chayanov (1975) described them at the dawn of the 20th century, as spaces organized by the needs of the family cycle, and able to efficiently use the available socioecological resources. For the modernizing approaches, said practices are "*relegated to remote places in history*" (Van der Ploeg, 2010, p. 39); however, in these practices there is an increasing recognition as keys for the survival and adaptation of country folk. Van der Ploeg (2010) defines the *peasant condition,* in old and new peasants, focused on two concepts: autonomy – flexibility, mobility and independence – and coproduction between being human nature – continuous interaction and mutual transformation-. Their production process is, in this way, a whole that recreates and improves the natural and social resources, expanding the natural, genetic and cultural heritage, based on the socioecological knowledge of the territory, the intensive use of the resources, and strategies of pluri-activity, reciprocity, flexibility and risk control. The cases analyzed, mix of traditional families and children of country folk who return from urban experiences, and new rural inhabitants, constitute the new peasants described by Van der Ploeg who build autonomy in a mutual transformation process with their territory from a space of economic difference (Gibson-Graham, 2006).

III. METHODOLOGY

The research approach was qualitative, applying two techniques: an individual interview and participative social mapping. The interview is an open and flexible conversational

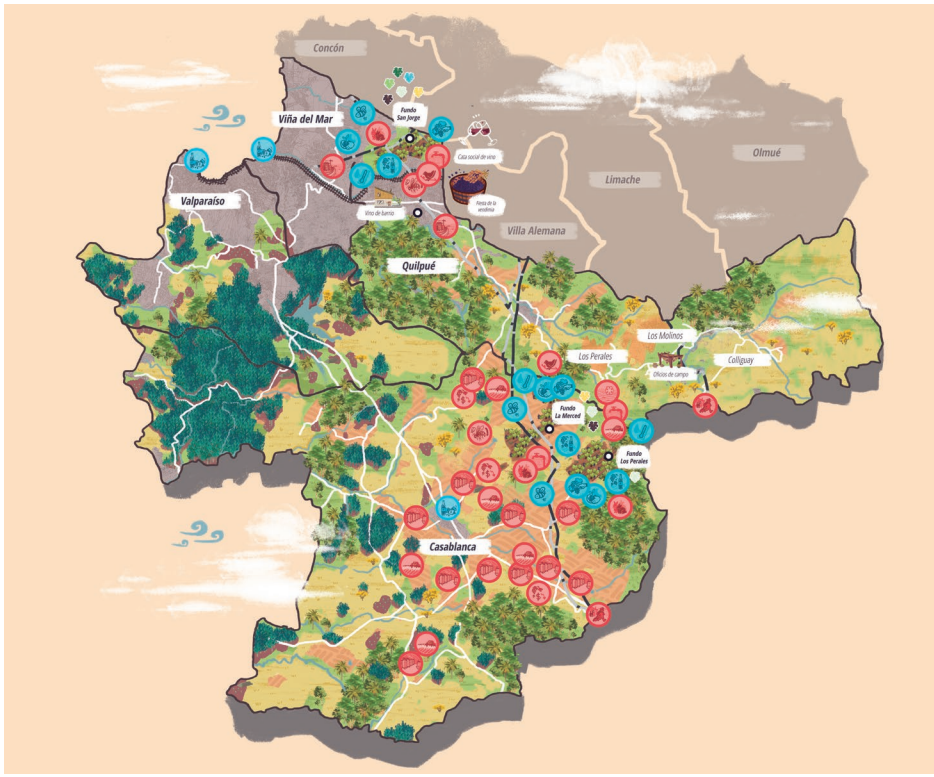

Figure 1. Caupolican Cooperative Map. Source: An broader and broken down version of this map was published in Cid-Aguayo (2019) Full version of the Atlas: http://otraseconomias.cl/atlas-ilustrado-territorios-rurales/

Figure 2. Marga Marga Cooperative Map. Source: An broader and broken down version of this map was published in Cid-Aguayo (2019) Full version of the Atlas: http://otraseconomias.cl/atlas-ilustrado-territorios-rurales/

Figure 3. Ecoparras Map. Source: An broader and broken down version of this map was published in Cid-Aguayo (2019)
Full version of the Atlas: http://otraseconomias.cl/atlas-ilustrado-territorios-rurales/
Figure 4. COPABIO and Viñateras Bravas del Itata Map. Source: An broader and broken down version of this map was published in Cid-Aguayo (2019)
Full version of the Atlas: http://otraseconomias.cl/atlas-ilustrado-territorios-rurales/

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exercise, that collects the discourse of informants, with their emerging points of view. 26 interviews were made with wine producers and leaders in the three valleys. These discussed about the productive, economic and cultural characteristics of the activity, their context and their projections. Alongside this, 4 social maps were developed: two in the Itata Valley, one in Lontué and one in Marga-Marga, which were prepared through a participative work with members from the main wine production organizations. Each one, began by establishing agreements with local leaders to define goals, images, scales and icons of the map. Then, two mapping sessions, the first works with the current territory, lived by its inhabitants. For this, the economic points of reference, the productive potentialities and the socio-spatial conflicts are identified. In the second session, the map is presented and validated, and work is done regarding the imagination of future desired and possible territorialities, using a form of dream map. Subsequent validation sessions allowed taking the information deeper through collective debate and dialog. The maps were reworked as artistic products to underline the subjective and spoken nature of the mapping process and to give back to the communities an attractive and useful graphical product for their own processes (see Figures 1, 2, 3 and 4).**6** The interviews and discussions of the social mapping processes were recorded, transcribed and subject to content analysis. All the statements of this document, are based on this analysis exercise.

IV. RESULTS

The other Chilean wines: case studies

Chilean wine production is a scenario of dispute between a standardized, greatly concentrated and expanding industry, and trends towards the diversification of production, like the revaluation of heritage products (Lacoste et at., 2015) and fair trade (Malo & Mori, 2003). In this way, there are other ways of making wine that build other landscapes; of which we reveal three experiences here in the Itata, Lontué and Marga Marga Valleys.

The Itata Valley is a traditional peasant wine production area that harks back to the colonial Jesuit production in the Cucha-Cucha Hacienda. Ledesmas (2018, in Henríquez, 2018) points out that in the area, 26 different heritage varieties are grown, like pais, muscatel, cargadora and San Francisco. The Farming Census (2007) registers more than 5,000 producers with less than 5 hectares of property and 1 hectare of vines. The geographic distance and the small property structure safeguarded a traditional wine production of pipeño and asoleado wines, on the margins of the modernization and francization processes of large-scale properties in the central valley. Currently the production continues to be led by small producers, organized into different associations. In particular, we work with three organizations: CopaBio, EcoParras and Viñateras Bravas del Itata. Only some producers effectively make domestic and collective wine production with differing degrees of technification, and their insertion in the markets is diverse: grape sales to large companies, bulk wine production for its direct sale and premium wine bottling production.

In the Lontué Valley in the Province of Curicó, the Caupolican Cooperative is an associativity experience between peasant producers, inherited from the agrarian reform process, whose purpose is to *mutually protect themselves against the ups and downs of the market* and to obtain fair, sustainable and regular prices**7**. Since 2009, supported by a public-private support network, Caupolican produces collectively, being certified as a Fair-Trade Small Producers Organization, which lets them export to Europe. Today, the Cooperative, comprises 13 male and 5 female members which together work 84.5 hectares.

The Marga-Marga Wine Production Cooperative is an associative wine production on the fringes of the Casablanca Valley, in the region of Valparaíso, that groups 7 families. This cooperative looks to increase the number of members, productively recover the vineyards, overhaul productive practices and traditional trades and reposition natural wine as their own.

Socio-territorial problems in the case studies

All these experiences narrate a set of cross-sectional socio-territorial problems. First, the role of large wine production, a "selfish giant" in the words of some leaders. Small production has maintained an articulation, through intermediaries, with the large-scale wine industry, selling them grapes and must, which has grown as the industry has cornered the cheap wines market (in tetra pack boxes), displacing the sale of bulk wines. The conditions of this relationship have been problematic. In the Itata Valley, for example, in the 90s, the companies paid excellent prices, leading many producers to abandon wine production and specialize in grape sales, which would have led to abandoning the casks, tubs and barrels, damaging them because of this: *"they opened up"*. Later the grape price

6 An broader and broken down version of this map was published in Cid-Aguayo (2019)

7 In interview made in 2019.

fell to the point of not covering production costs and without a possibility to return to the old trade. Also, in Marga-Marga, given the proximity to the industrial wine production plantations, the stories report (1) a widespread use of pesticides that affect their ecological production; and (2) the industrial commercial enclosure for the small organic producers. In the Lontué Valley, the large-scale wine production industry competes with small vineyards in the labor and transport service market, increasing the cooperative's costs.

A second element, are the diverse dynamics of territorial expulsion. The forestry industry of introduced species is a large producer of the landscape in the Itata and Marga-Marga Valleys. Not only do they occupy extensive areas of land, but land monopolization practices are also attributed to them, as well as blaming them for the drop in underground water levels and in local biodiversity, affecting the terroir of the wine. According to the producers, the proximity to eucalyptus plantations would imprint a minty flavor on the wine and the emissions of the paper mills would damage their quality. Forestry is also associated to major fires in 2011 and 2016, which report significant losses in the amount and quality of the annual grape production, and permanent losses, with the burning down of wineries and the loss of centennial vines.

In the Marga-Marga Valley, urban expansion increases land prices and exercises pressure on wine production lands. In the Lontué Valley, the expulsion dynamics are provided by competition between vineyards and export crops like cherries for the land, labor and transport services. More recently, the wine production industry would also be exercising territorial pressure, in the context of climate change and the heritage process of varieties. The change in temperature and rainfall patterns could be making the traditionally less appreciated southern valleys more attractive and the revaluation of the pais, cinsault and muscatel varieties, make the centennial peasant vines more appealing.

Apart from the conflicts with players who pressure and displace the peasant wine trade, the weakening and impoverishment of rural communities reduce their wine production capacity. The aging and emigration of the young, deprive productive units of help for certain tasks like weeding and harvesting; and these are related to loss of trades and knowledge associated to barrel-making and horse-drawn ploughing. Particularly relevant is the loss of wine production infrastructure seen in the three valleys.

In the Itata, this has suffered from aging due to disuse and damage associated to earthquakes; "*two years of not using the casks, they open up and are of no use*"**8**. As a result, only some families produce on a commercial scale, and are forced to sell grapes to the large companies. The Caupolican cooperative outsources wine production services, which is not only troublesome, but also complicates traceability and control of the process. The Marga-Marga Cooperative also leases infrastructure and wine cellars, sacrificing autonomy.

Finally, the State is pointed to as a problematic player in several ways. In regulatory terms, producers consider the tools to regulate the monopsonic position of the large vineyards as grape buyers as insufficient. In terms of incentives, support for infrastructure, cellars and casks, is considered insufficient, and the technical advice, not really pertinent and homogenizing. They see that *"the technical staff make wine from chemicals"* **9** and disrespect the differential knowledge and practices of the peasants. So, it is perceived that the State favors large industry, facilitating access to raw materials at low costs, through the production chains.

Wine production and socioecological production of the territory: transformative ecopolitics

The three valleys represent a small scale, sustainable peasant wine production proposal in territories traversed by conflicts. In this section, we will focus on their practices to produce a sustainable wine production and a socially, economic and ecologically diverse, balanced and sustainable territory.

In each valley, wine production benefits from favorable ecological conditions that produce their distinct aspects. In Marga-Marga, the presence of sclerophyllous forests and the coastal influence that regulates temperature and humidity for a slow maturation, results in wines with fruity flavors and balanced acidity. In the Lontúe Valley, an important thermal amplitude favors the growing of white varieties. In the Itata Valley, the social mapping exercises showed how small variations in topography have produced differentiated wines. Higher, sunnier sectors with greater drainage, provide wines denominated as "reds", "spirituous", with a high alcoholic content, thick, very dry or very sweet; and low valleys, with less sun exposure, more humidity and coastal influence, permit "green", "fresh", "fruity" and "light" wines **10**. The knowledge of the territory showed being so intimate that on the maps, specific slopes where certain wines are produced, were identified. The wine-makers in this way acknowledge the territory and terroir relationship, and their production practices aim to recreate and improve this landscape.

8 ECOPARRA Leader, in interview in 2019.

9 COPABIO Leader, in interview in 2019.

10 ECOPARRA leader, in interview in 2019.

Their production proposals look to recover traditional varieties that even come from the colonial period, like Pais, Moscatel de Alejandria, Torontel, Italia, San Francisco and Cargadora, Tintorera or Cinsault, Pastilla del Belloto, Rosa de Curtidilla, Rosa Frutilla, Blanca Italia and Cristal, all made invisible by the standardization of large industry. Some of these ecotypes, have co-evolved with their territory, attaining such a rusticity that they are resistant to droughts and plagues, making many agrochemicals superfluous. This is expressed in the elaboration itself of the natural wines, as the grapes capture the environmental microbiota, making the addition of yeast unnecessary, in such a way that the wine reflects the biological diversity of the place.

The sale of grapes and wine allows these small producers to obtain autonomy and economic sustainability to dynamize a complex production system. The recovery of traditional practices that allow reducing the dependence on external, usually expensive supplies, is strategic for this. The search and care of vines with greater resistance and traditional forms of production, relevant for the socioecological reproduction of the territory, is key in this point. For example, the use of pruning as fertilizer allows enrichening the soils; weeding using a horse-drawn plough (instead of using glyphosate) looks after the soil, it allows the existence of accompanying flora and fauna, and breaks it up to make better use of the rainwater: "*where there are ploughed vineyards, the aquifers are better*" **11**. These traditional practices are resignified from new languages: they speak of agroecology, biodynamic practices, while at the same time, the *"spirit of the wine"* **12** is understood. These processes, which are not homogeneous, constitute a common horizon. In more general terms, grape production constitutes a frontier to forestry, urban and fruit and vegetable single crop expansion. The profitability that it offers allows small producers to keep their land and maintain their form of production; preventing selling it to forestry companies, for summer houses or for urban development.

There is also an effort to recover traditional forms of wine production, in dialog with modern forms. Facing a French influenced enologist from the large-scale industry, who colonizes flavors and involves small producers through technology transfer, these winemakers recover lost practices and trades. Their wine production practices transit from strictly traditional, milling by foot, leather winepresses, maturation in casks, to modern, to create in their words: *"honest wines, pure grape juice, without chemical additives, enological corrections or water"* compared to the industry enologists that *"transform water to wine"* and produce standardized wines *"that always taste the same"*. It is expected that the wine *"is made in the old-fashioned ways… stepping on it", "a peasant wine",* that *"tastes of the place and the year it is made"* and that *"evolves in the bottle"*. Thus, away from the intervened and external handling of experts that *"manufacture wine"* following enological methods **13**, each family that produces, practices and safeguards a wine with identity and authorship.

Finally, it is relevant to note the processes of associativity and cooperation of these experiences. They all have a history of informal cooperation, "paying back favors" **14** in pruning, wine harvests and common problems, and recently experience a cycle of cooperativism that formalizes these practices. Ecoparra constitutes an exercise of collective gathering and wine production to improve bulk wine prices. Copabio, Viñateras Bravas and Marga Marga are also exercises of symmetric associativity among producers. The Caupolican Cooperative, created in 2018, is founded on the experience of two Agrarian Reform settlements, with a history of neighbors and reciprocity, as well as sectors of "common goods" in use: corral, church, football pitch, rural hospital and school.

Economic strategies to have a share in the market

Access to markets is critical for these experiences, as the distribution is concentrated by large companies and the local consumption niche is limited. The exercises described show a variety of strategies for this:

1. Strategies to confront the industry on grape prices: The wine-making organizations present political strategies to report and confront the monopsonic practices of the industry with the grape suppliers. In particular, they appeal to the competition regulations of the current regulatory framework; the Wine-makers Federation, have exercised political pressure with street demonstrations, like the destruction and gifting of grapes and wine, and have presented demands to the National Economic Prosecutor about abuse of a dominant position. They also denounce the regulatory context that allows the addition of a percentage of water in the wine and the use of table vines.

2. Strategies of addition and autonomous collection centers: The sale of grapes and bulk wine individually prevents the producers from improving their market position. Ecoparras, Copabio and the Caupolican Cooperative form collection centers to generate a selling power that is capable of

11 ECOPARRA leader, interview in 2019.
12 Marga-Marga Cooperative leader, interview in 2019.
13 Extracts of interview with COPABIO leader, 2019.
14 Marga-Marga Cooperative leader, interview in 2019.

obtaining better prices with the industry, suppliers and the external market. These strategies require a high degree of trust and internal control systems, as it is vulnerable to intra-organization fraud, like the delivery of grapes or wine of a lower quality or alcoholic content.

3. Development of signature wines: This is the route taken by several producers, individually and collectively, in Itata and Marga Marga, to add value to the agroecological crop and artisanal wine production as a product of terroir. These wines are sold directly and in festivities to minimize intermediaries and build direct relationships. This strategy has, as a limitation, the size of local markets, in the words of a winemaker *"we are flooding the bottle market"* **15**; the challenge is to build, in this way, a specific niche of the heritage, and natural. An example of this strategy is the *social winetasting* that the Marga-Marga cooperative organizes to bring the consumer closer to local wine production.

4. Specialized export: the difficulties of the internal market lead some organizations to export in natural wine or fair-trade niche markets. The National Fair-Trade Coordinator, facilitates a trade channel with an English cooperative that buys wine in bulk, bottling and selling them at their destination with their own brand. The export strategy allows the organizations to expand the market and obtain better prices but, at the same time, is perceived by some of their leaders, as going against the challenge of reducing the ecological footprint and densification of local economies.

Each one of these strategies involves an exercise of associativity and of political organization of the markets to allow the entry of fewer producers. However, this variety of strategies reflects different political positions. The first, appeals to political organization and market principles, demanding justice from its own rules. The collection centers have a less political nature, they do not oppose the industry, but rather appeal to economic addition, aspiring to building negotiation capacity and cost leadership by horizontal coordination between producers to face the oligopsony of grape purchasing powers. The closest space to the building of autonomy is providing specific niches that value the terroir, as the Marga Marga cooperative and some winegrowers of the Itata Valley have done.

V. CONCLUSIONS

Summarizing, wine production is a scenario hegemonized by agroindustry, but also one in dispute. The "other Chilean wines" represent spaces of territorial economic and socioecological sustainability that survive in a scenario of tension. Urban, forestry and fruit and vegetable expansion and the large wine industry and its commercial dynamics build a problematic setting. Small wine production faces the unilateral management of grape prices, a productivity-based model and diverse forms of territorial and economic pressure. They respond to this with productive proposals based on the heritage recovery of traditional practices and ecotypes and with a sustainable relationship with their territory based on the coevolution between the human community, the place, the variety and even the local microbiota. In this way, efforts are made to recover peasant trades, maintaining a production system with few external supplies and a means of understanding production that prioritizes building territory. These experiences face a wine consumption that has endured major colonization processes, that marginalize more rustic or working-class wines, appealing towards recovering the taste for a local wine, with diverse flavors and the result of the interaction of the natural conditions and the territories. Despite that not all these experiences are formal cooperatives, the formal and informal associativity is key. Their participation in the markets, essential for their survival, involves an exercise of associativity that seeks to influence the social organization of the markets. This is done through strategies that express different political positions, appealing to social mobilization, economic additions and building autonomy through the construction of niches.

These experiences call to reflect about the coevolution between an eco-territory, peasant practices of grape growing and wine production, the traditional varieties, especially the pais, and a bacterial complex, that lives in the varieties, in the place and in the hands and feet of its producers, that leads to the characteristic fermentation, making the addition of yeast unnecessary. Here we actually have the synthesis of a terroir based on favorable ecological conditions and productive practices that care for and rebuild said landscape (like the care of the land with manual ploughing and natural fertilizing practices, and the care of forests), and in reproducing the traditional varieties that have coevolved in the place. This ensemble of practices, variety, territory and bacteria, allows the construction of strategies that reduce the multiple dependencies of the peasant economies, to debt, to the State, to the supplies, to the price of grapes, etc., and dreaming with autonomy strategies. This ensemble also allows the existence of a territory of difference, where grape production and wine preparation constitute a frontier to the homogenizing expansion of the forestry companies in the Itata and the urban one in Valparaíso.

We close this document by revisiting our hypothesis that these initiatives contribute to ecological diversity, equality and sustainability. The stories presented are multiple

15 ECOPARRA leader, interview in 2019.

TERROIR Y TERRITORIO
CASOS DE LA PEQUEÑA VITIVINICULTURA EN EL CENTRO SUR DE CHILE
BEATRIZ EUGENIA CID, EDUARDO LETELIER, PABLO SARAVIA, JULIEN VANHULST
REVISTA URBANO Nº 42 / NOVIEMBRE 2020 - ABRIL 2021
PÁG. 112 - 123
ISSN 0717 - 3997 / 0718 - 3607

exercises of diversity; of varieties, of techniques, of flavors and even microbiological. They represent the possibility of safeguarding other forms of living and producing the territories, facing the homogenization of the industries that fight for them. They represent stories of sustainability in the use of territorial resources, adapted to situations of water shortage, and dedicated to land conservation. Finally, they contribute to maintaining the old and new family peasant agriculture, densifying local economies and vindicating the fair price for the producer.

Their wines are from a unique terroir, that contain their flavor and texture, traces of a socio-natural process that synthesizes a respectful and co-productive relationship with the environment and a cultural tradition that learns, adapt and coevolves with its territory. In this way, they dialog with the growing trend of accessing more natural products, of ethical production and territorial identity, where what was previously considered backward, is now considered valuable. This represents an opportunity for these producers, but also a possible space of conflict with industrial wine production. This because, as the path of other niche products has shown, starting from a minimalist or entirely simulated imitation of traditional practices, industrial wine production can occupy these demand niches, without directly benefitting the producers. Thus, there is a renewed risk of symbolic and material colonization, through which the industry makes use of denominations of origin, and generates products under this label where the traditional practices, processes and knowledge of small wine production are attributed. It is relevant here to strategically and ethically address the matter of effectively and systematically linking local producers and sensitive consumers to these processes. In this regard, there have been experimentation exercises of direct visits of organized consumers to the vineyards, social winetasting, and the so-called clandestine winetasting held in houses of strategic consumers.

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Recibido: 27-05-2020
Aceptado: 13-11-2020

PERMEABILITY OF THE INDIGENOUS

SPACE. DISCOURSES OF MAPUCHE LANDOWNERS ON URBAN EXPANSION IN PERIURBANIAN TEMUCO, ARAUCANÍA-CHILE[1]

PERMEABILIDAD DEL ESPACIO INDÍGENA DISCURSOS DE PROPIETARIOS MAPUCHE SOBRE LA EXPANSIÓN URBANA EN EL PERIURBANO DE TEMUCO, ARAUCANÍA-CHILE

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1 This work was carried out within the framework of Fondecyt Regular N° 1201255, “The spatial tastes in the production of urban spaces within neoliberal Chile: the case of Temuco-Padre Las Cases and Iquique-Alto Hospicio”.

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Las ciudades se caracterizan por ejercer una constante presión sobre el suelo periurbano rural. Las lógicas bajo las cuales opera el mercado inmobiliario y distintos otros agentes sumado a la flexibilidad de los instrumentos de planificación urbana que regulan el territorio, hace de los entornos urbanos espacios en permanente cambio. Temuco, una de las ciudades intermedias más importantes de Chile en cuanto al número de población, se ha desarrollado a partir de estas mismas lógicas. Sin embargo, y a diferencia de otras ciudades chilenas, la presencia de Áreas de Protección de Territorio Indígena (APTI), asociadas a comunidades mapuche, establece barreras legales que impiden el crecimiento convencional de la ciudad. De igual forma, es posible observar cómo en las últimas décadas, estas tierras han sido permeables a distintos usos, fuera de las dimensiones que supuestamente protege la ley. El presente trabajo explora los discursos de propietarios mapuche de suelo periurbano respecto a los cambios que estas áreas han experimentado en el último tiempo producto de la expansión de la ciudad. Para ello, se realizaron 20 entrevistas a propietarios mapuche de zonas periurbanas aledañas a Labranza, área urbana de Temuco, las cuales fueron analizadas bajo los parámetros de la Teoría Fundamentada. Entre los resultados obtenidos, destacan las estrategias de presión sobre este suelo provenientes de distintos agentes privados, la pérdida de sentido ancestral de la tierra por parte de algunas comunidades mapuche, que terminan vendiendo bajo distintos resquicios legales y la resistencia a la intromisión externa que aún persiste en mucho de ellos. Esto último evidencia que las estrategias de resistencia mapuche no sólo existen en territorios afectados por la intervención forestal, sino también en aquellos espacios que son tensionados por el rápido crecimiento de las ciudades.

Palabras clave: extensión al medio rural, población indígena, planificación urbana, suburbios, urbanización.

Cities are characterized by exerting constant pressure on peri-urban rural land. The logics under which the real estate market and other different agents operate, together with the flexibility of urban planning instruments that regulate the territory, means urban space environments are permanently changing. Temuco, one of the most important intermediate cities in Chile in terms of population numbers, operates under the same logics. However, unlike other Chilean cities, the presence of Indigenous Territory Protection Areas (APTI) associated with Mapuche communities, establishes legal barriers that impede the conventional growth of the city. Likewise, it is possible to see how in recent decades these lands have been permeable to different uses, outside the dimensions supposedly protected by law. This work explores the discourses of Mapuche peri-urban landowners regarding the changes that these areas have recently undergone as a result of the city's expansion. To do this, 20 interviews were conducted with Mapuche landowners from peri-urban areas around Labranza, an urban area of Temuco, which were analyzed under the parameters of the Grounded Theory. Among the results obtained, the following stand out: pressure strategies on this land from different private agents, the loss of ancestral sense of the land by some Mapuche communities that end up selling under different legal loopholes, and the resistance to external interference that still persists in many of them. The latter shows that there are Mapuche resistance strategies not only in territories affected by forestry intervention, but also in those spaces under stress from the rapid growth of cities.

Keywords: extension to rural areas; indigenous population; urban planning; suburbs; urbanization

I. INTRODUCTION

The actions of resistance by the Mapuche people go back to the foundational acts of Spanish settlements that took place in 1552 within the *Wallmapu/Araucania*. In this way, the Spanish conquistador become the first player who had to contend with the indigenous communities, who, on facing the impossibility of dominating the Araucanian territory, saw the obligation to converse and seal some good neighborly treaties (Pinto, 2003). After three centuries, the Chilean state becomes the second player the Mapuche people establish resistance again, which failed by the end of the 19th century, with the resulting displacement of a large part of these communities to the Andean foothills, far from the spaces of ancestral significance. Currently, the forms of invasion of the Mapuche territory seem to be more subtle, without the imposition of physical force that characterized these two previous agents. However, an incursion into these indigenous territories is still made by new players, reason why the indigenous communities have had to adapt different resistance strategies.

The forms of resistance that the Mapuche communities exercise today are related, among other aspects, to the urban expansion into legally protected indigenous land. In this context, the city of Temuco (Chile) has been historically circumscribed in a territory surrounded by State protected Mapuche lands, which form a "suicide belt[5]", term which not only is used metaphorically to account for the pockets of poverty and vulnerability there are during the first half of the 20th century (Foerster & Montecino, 1988), but also as a geographical restriction for the future urban development of the city.

The existence of this protected peri-urban area is related to the actions of the Chilean State over Mapuche land. The territorial unification process begun by the State in the second half of the 19th century involved the mobilization of the army to the south, reason why the Mapuche communities present in the Araucania, just like with the Spanish, set up armed resistance in defense of their territory (Viera, 2015). Once the Mapuche were defeated, the State claims the land as their own, to then auction it to private parties or to hand it over to foreign immigrants who began the colonization process (Henríquez, 2013) and exploited its fertile lands, transforming this area into Chile's granary and, later, into one of the icons of the forestry industry (Escalona, 2020).

One of the instruments that contributed to this was the law passed on December 4th 1866, which ordered demarcating the lands belonging to the Mapuche and granted land ownership titles over rural sites (Almonacid, 2009; Chihuailaf, 2014). The latter were located outside the limits of the cities that emerged in the Araucania, which in general tended to be inhabited by Chilean, German, Swiss and French colonists (Ferrando, 2012).

Although the law that granted the land ownership titles had the intention of repairing damages caused by the State incursion into the Araucania, in the same way the Mapuche owners were victims of countless fraudulent land sales, undue charges for debts, and other scams that diminished their control over the lands handed over (Pinto, 2003; López, Valenzuela & Carrasco, 2017). With the goal of rectifying these problems, and from a parliament[6] held in Nueva Imperial in 1993, President Patricio Aylwin recognizes the importance of recovering the ancestral lands, for which he creates CONADI (National Corporation for Indigenous Development), which has among its functions, the purchase and repartition of lands to Mapuche communities (López et al, 2017). Thus, starting from article 13 of the Indigenous Law 19,253, it is declared that these lands may not be transferred, embargoed, encumbered, or acquired by order, except between communities or persons of the same ethnicity.

Despite this, and beyond this important characteristic in terms of the possession of the surrounding land, currently it is possible to see that this protected territory is increasingly more permeable to urbanization. There are two reasons for this: on one hand, the growing interest for natural amenity which, alongside this, is accompanied by a change of direction associated to the decline of urban life in subjective terms that many inhabitants of the cities experience, a phenomenon known as counter-urbanization; and, on the other hand, the lack of regulatory connection of the land in these areas. Regarding the latter, it is possible to confirm an uncoupling between the plans that regulate the city, while the Communal Regulatory Plan of Temuco (PRCT in Spanish), valid since 2010, is only in charge of the zoning of the different uses within the city, the indigenous law N°19,253 regulates the use of indigenous lands on the periphery of the urban area called, Indigenous Territory Protection Areas (APTI in Spanish) and identified in article 15 of the ordinance of the Plan (Rojo, Alvarado, Olea & Salazar, 2020).

5 In 1946, the Austral Newspaper used this term to account for the problems that these areas represented for the urban development of Temuco

6 The parliaments are meetings which the Mapuche first held with the Spanish and then with the Chilean State to resolve conflicts between both parties.

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Considering the foregoing, the games for the control of this territory have different angles. Among those, the intention by the political system to change the current prohibition of sale of these lands[7], which opens up the possibility that some indigenous communities become interested in negotiating their lands within the land market. As a result of these interests, the future consequences about the functional metropolitan area of Temuco will be significant regarding compacting and densifying the urban sprawl (Rojo et al., 2020).

This work explores and describes the discourses of the Mapuche landowners of peri-urban Temuco regarding the changes this land has had, with the purpose of understanding the pressure processes these territories have experienced from different private and institutional players related to the real-estate market and urban planning. In this sense, Mapuche communities are understood as those groups who inhabit the APTI located around the city.

II. THEORETICAL FRAMEWORK

An important part of the works referring to the growth of the city over rural land have been addressed starting from the notion of counter-urbanization, that is the process where the population has moved to the country, physically deconcentrating the territories (Mitchell, 2004). The debate around this phenomenon tends to take the place of the motives that led to closing this residential movement, among which the enjoyment of natural spaces is the most mentioned. For this reason, counter-urbanization is also called migration for amenity, which places emphasis on the population movements linked to the perception that people have with respect to that their quality of life will be better in places away from the city (Hidalgo, Borsdorf & Plaza, 2009; Janoschka, 2013; Vergara, Sánchez & Zunino, 2019). Regardless of the specific name, what is true is that this displacement phenomena and creation of new nodes of human settlements is socially transforming rural areas, the native population cohabiting in this way with different types of neo-rural inhabitants, the latter, with varied interests (Méndez, 2014).

The city of Temuco does not escape this counter-urbanization phenomenon. On one hand, and as a result of the intensification of financial capital on the cities (Harvey, 2014; Méndez, 2018), aspect under which capital is accumulated in the current global economy (Engels, [1873] 2006; Smith, 2012), there is a growing interest of the real-estate market to urbanize peri-urban areas destined to high-income groups (Rojo, Jara & Frick, 2019; Marchant, Frick & Vergara, 2016; Vergara, 2019). On the other hand, the spatial tastes of amenity that these areas offer, that end up making the idea of a "little house in the country" widespread, determine that many people are thinking about moving to these areas (Rojo, 2019).

However, the counter-urbanization processes in Temuco linked, both to the financial capital, and to the particular actions of different social classes as a result of the taste for natural amenity, are faced with the presence of restrictions for conventional urban expansion. The reason, the peri-urban area linked to the indigenous land ownership titles (Figure 1), that introduce a series of limitations for displacement (seasonal, second-home) or migration (definitive, associated to the supply of the real-estate market) towards the peri-urban area of the city.

In global terms, the constant expansion of urban plans and policies over indigenous spaces have provoked a series of tensions. Among these, the symbolic game of inclusion and exclusion that many of the inhabitants of these areas in Latin America, reason why they must constantly think about their ethnicity and their own notions of community (Herrera, 2018), the administration and management issues of these lands as a result of the absence of land ownership deeds and planning policies in countries like Australia (Wilson et al., 2018) or the partial power that traditional authorities exercise in these areas due to their dominant role that governmental institutions of some African countries have in their administration (Brandful, Osei & Asuama, 2020) stand out.

One cause, that allows explaining the pressures of the counter-urbanization phenomenon on indigenous territories are the traditional urban policies that have historically been in place in the cities, which have been characterized on setting land uses and ordinance categories that end up breaking down any glimpse of organization of the indigenous territory. In this sense, the presence of the cities evokes the political domination and the transfer of a cultural model that western society installed in different parts of the world (Soja, 1996).

In the Chilean case, the foundation of the cities on the old Araucanian frontier justified a series of colonial actions (De Ramón, 1992) that ended up promoting a dominant common sense, where the Mapuche people and their life away from the 'crowd of the cities was seen as 'primitive or savage' (De Ovalle, 1646). This negative construction of the other or epistemic violence (Spivak, 1998) is based on the attempt to dominate in the name of a cultural supremacy (Bhabha, 2002). Said actions of colonial distinction have remained in place until today, being reflected in the urban land production which Mapuche communities located around the cities experience. Among the aspects that characterize this spatial production, the denial of the indigenous trait of the land, territory and territoriality of the communities that inhabit in their surroundings results in a

7 An important part of the 2019 indigenous consultation process was focused on ownership deeds and the possibility of Mapuche communities of leasing or selling them.

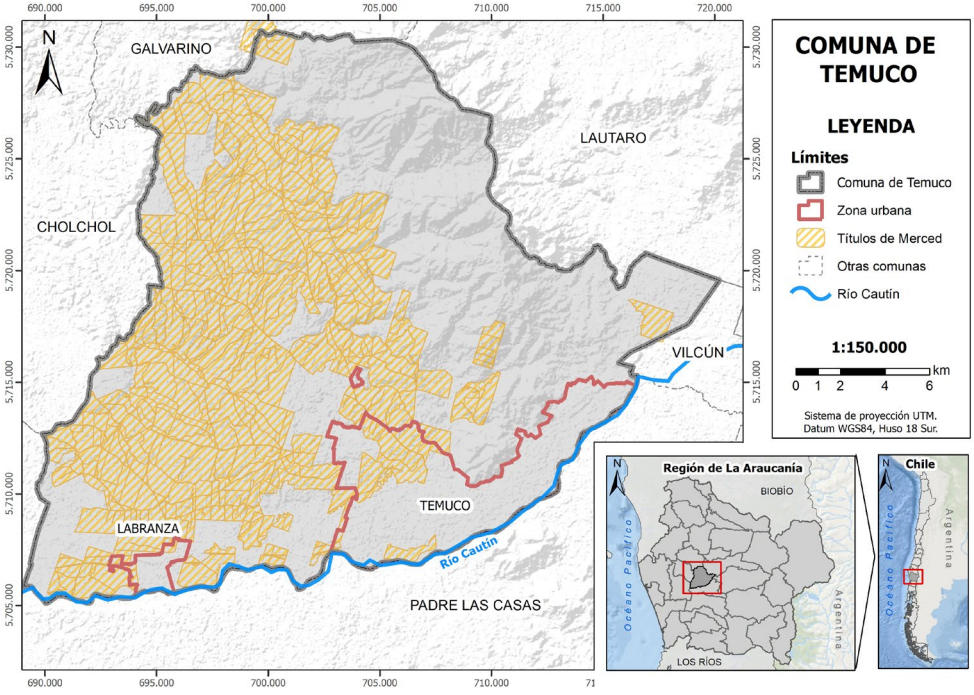

Figure 1. Land ownership deeds in the commune of Temuco. Source: Own preparation based on information from CONADI (2018). Cartographic design, Camila Salinas

core aspect, reason why, just like what happened at the end of the 19th century, urban progress denies the difference and the existence of other forms of inhabiting in the territory, formed from the historicity of the Mapuche people (Lincopi, 2015; Mansilla & Imilan, 2020).

Despite the relevance of the issue, there are no works that address in depth, the pressure of different interests on the indigenous peri-urban territory of Temuco. What is known about this city talks about the unequal presence of social groups in the space (Garín, Salvo & Bravo, 2009; Vergara, 2019), the disputes for the right to the city and housing half way through the last century (Vergara, Gola & Huiliñir, 2015), or the recent urban growth processes (Marchant et al., 2016; Rojo et al., 2019). Although there are some papers that present the potential of conflict that the urban expansion pressures on indigenous land represent (Quiñones & Gálvaez, 2015; Rojo et al., 2019; Mansilla & Imilan, 2020), these do not go deep into the particular angles that these critical nodes represent for the future.

III. METHODOLOGY

To respond to the goal of the work, the decision was made to focus the search for Mapuche landowners in peri-urban areas around Labranza, an area uncoupled from the consolidated urban space of Temuco, that emerges as a response to the lack of developable land in the city for the poorest sectors during the 1990s (Figure 1).

The strategy of the theoretical sampling based on Grounded Theory was set out (Strauss & Corbin, 2002) for the final selection of 20 Mapuche landowners, all of which had different land ownerships titles and indigenous communities (Table 1). The criteria this selection complied with was the following: a) that the landowners were close to residential areas, for which three search macrozones were defined (Figure 2); b) that the landowner had a current ownership of the property (deed possession) or was in an inheritance process; and c) that the land was not uncultivated.

Semi-structured interviews were applied to all these landowners in July 2019. These contained questions related to socio-spatial dimensions, like the cultural attachment to the land, the current use of the property, the perceptions about the progress of the city and the role of the land for the future development of their communities.

The interviews were processed using the ATLAS ti.8 software and analyzed following the guidelines of constant comparison, principle that the Grounded Theory sets out to

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Macrozones	N° and name deed holders	Legal representative N° and name of the indigenous community	N° interviewed
MZ North	262-Ignacio Elgueta	88-Ignacio Elgueta	1
		2102-Ignacio Elgueta 2	1
	347-Jose Cheuquean	1505-Jose cheuquian	1
		2115-Jose cheuquian 2	1
	258-Nahuelguen	1656-Nahuelguen	2
	346-Antonio Colines	1613-Antonio coline	2
MZ West	347-Jose Cheuquean	1505-Jose cheuquian	1
		2115-Jose cheuquian 2	1
	258-Nahuelguen	1656-Nahuelguen	3
	422-Antonio Huaiquilaf	1943-Antonio Huaiquilaf	2
MZ East	360-Juan Huaiquinao	960-Juan Huaiquinao	2
	259-Hueche Huenulaf	1694-Hueche Huenulaf	1
	362-Antonio Huala	1775-Antonio Huala	2
TOTAL	8	11	20

Table 1. General description of the indigenous communities considered in the study and number of interviews made. Source: Own preparation.

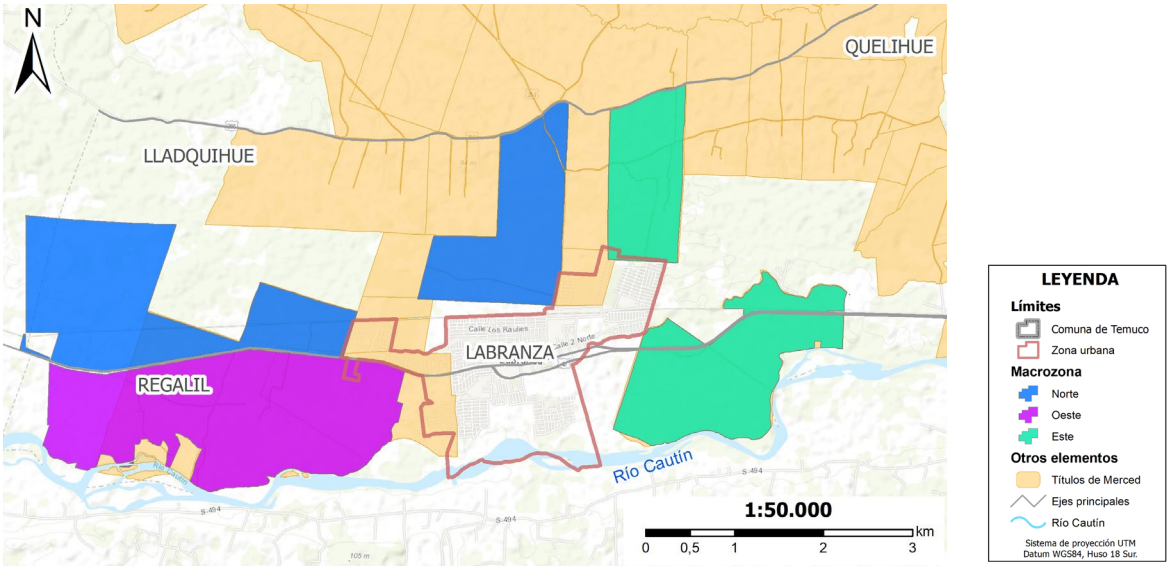

Figure 2. Macrozones around Labranza considered in the search and selection of interviewees. Source: Own preparation based on CONADI (2020).

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explore and discover latent patterns in the social discourse (Strauss & Corbin, 2002). The result of this strategy was the creation of three central categories: daily life under pressure; permeability of private agents and the end of Mapuche territoriality; and the resistance and projections of fighting for the land.

The qualitative information provided by the interviews was complemented with the preparation of maps, which allowed spatially expressing the macrozones of Labranza that are currently being permeated by financial capital. Its digitalization and processing were done using Geographic Information Systems (ArcGis 10.5), using sources obtained from CONADI and from the territory of inquiry itself (in respect to the current uses of the land).

IV. RESULTS

Just as Alonso de Ovalle (1646) already mentioned in his descriptions, the experience of the space for the Mapuche people is characterized by a close relationship with (and within) nature. However, this type of relationship with the space was not favorable for the operation of the *Wallmapu/Araucania's* exploitation. Its common use was not the most suitable to accumulate capital or to install a production cycle (Escalona & Barton, 2020; Escalona, 2020). Bearing these elements in mind, the analysis of the current discourses, accounts for the change in daily life that has occurred throughout regional history, but that has intensified in those 'border' spaces between the city and the Mapuche communities. The manifestation of permeability of the indigenous land regarding the progress of the city is expressed in the diversification of industrial activities and the intensification of the real-estate market in Labranza and its surroundings. As a result of this, social connectivity issues and replacements in the land uses traditionally present in the area can be generated (Gacic, 2018; Elorza, 2019).

Daily life under pressure

A first central category acknowledged in the landowners' discourse is related with the pressure that Mapuche communities permanently experience, from the different agents who want to use their land. It is known that the pressure the city exercises on peri-urban land generates a series of conflicts, among which the disputes on residential and agricultural use (Ávila, 2009; Hidalgo et al., 2009), the constant pressure of real-estate activity to broaden the horizon of action of financial capital on rural land (Jiménez, Hidalgo, Campesino & Alvarado, 2019), or the history and inertia of rural operation itself, that marks important distinctions with the forms of operating in the city (Haller, 2017), stand out.

In the context of the peri-urban area of Temuco, the lack of urban land in the city's consolidated areas means that the real-estate market mobilizes a series of activities on indigenous territory. Among these, the Mapuche landowners acknowledge, first of all, an association between the local government that plans and manages land use in the peri-urban area, and the real-estate companies that seek to extend the offer of dwellings in these areas. This occurs, according to the discourse of these landowners, disregarding protection regulations that govern indigenous peoples in Chile.

> "They want it all, today the real-estate companies have the municipality´s approval. Because the regulatory plan is being applied on the community, the consultations that apply under agreement 169 have not been made (…) they have passed decrees and thousands of things. But we have no idea about what they're doing" (Women, 50 years, west zone).

However, this deliberate action by municipal authorities and the real-estate market would have a pressure aspect, applied directly on the Mapuche territory, to which those companies that have been installed in recent years in the sector is added. These pressures upset the daily lives of the Mapuche community, ending up affecting the quality of life of the people who live there.

> "That was legally a tip, but the owner earned more money leaving Temuco's trash, which is why he started to dump everything here, all the contamination. We had to make a report and they stopped. But today it will be transformed into real-estate" (Woman, 50, west zone).

> "They can't invade or affect our way of life. For example, up there, there is a company called San Pablo, and at first glance it seems harmless, but there are families living behind that company, and this guy, sometimes, at 5 in the morning, starts up a truck and wakes everybody up, so there's already acoustic contamination" (Man, 57, east zone).

The pressures of the real-estate and industrial sector present in the area, are also expressed through the consequences that their actions have had on the territory. Among these, the appearance of a series of neighborhoods inhabited by middle- and lower-class sectors, built by the property companies, many of them planned on the basis of the subsidiary housing policy in Chile.

> "I love the countryside and I defend it. I look after my native trees, removing exotic ones. The neighborhoods barge into the community, because they think all of this belongs to them. They go out whenever they want to hunt, walk, fish" (Women, 42, north area).

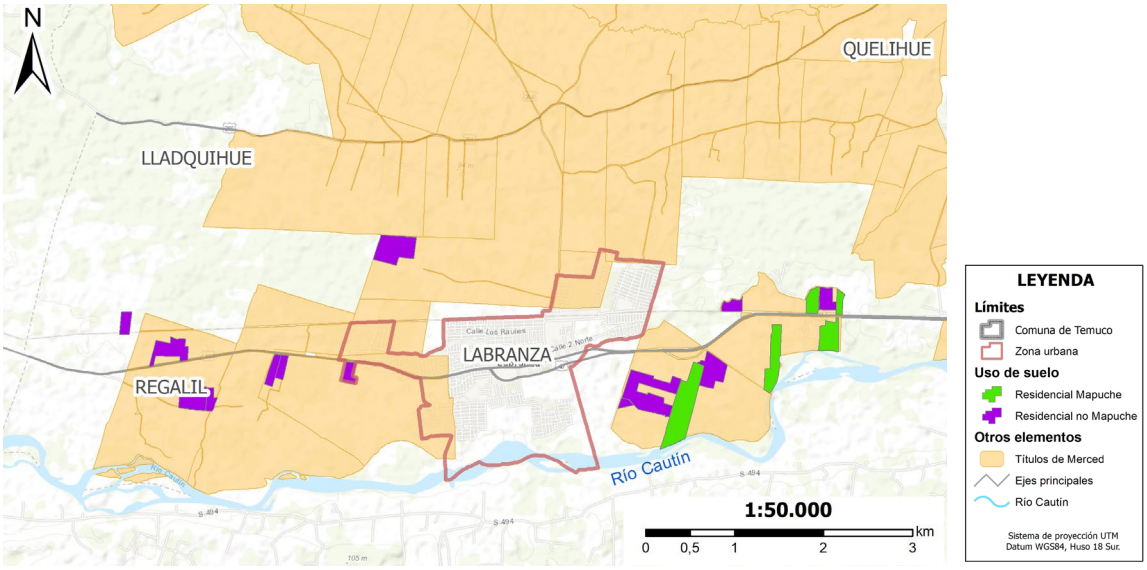

Figure 3. Land uses associated to Mapuche areas around Labranza. Source: Own preparation.

> "I know that some (Mapuche) communities have been affected, because now they have the neighborhood very close to them" (Woman, 24, west area).

It is possible to recognize a permanent pressure of the city and its progress towards Mapuche peri-urban areas. The Mapuche landowners recognize that this way of operating is not just from the private sector, that would provide coherent reasons regarding the possibility of maximizing capital from the land, but is also supported by a certain passivity from the public institutionality represented by the municipality, which would even leave certain ambiguities when planning the projection of the city in its surroundings. These actions have supplanted the Mapuche way of life, which is characterized by their living in lofs[8], from where they manage their subsistence through collection, growing and bartering practices.

Permeability of private agents and end of the Mapuche territoriality

An important part of the Mapuche territory projected by law, currently experiences forms of residential irruption due to the lack of urban land in the consolidated space of the city or due to its rise in value precisely because of the lack of development land. This is not just related to the increased presence of projects associated to the real-estate market, but also due to people interested in suburban life, in a counter-urbanization process that affects the areas close to the city. This is reflected in the construction of condominiums with irregular lots of 50 or 60 houses each, and the inclusion of the Mapuche rural territory as an urban zone within the Communal Regulatory Plan of Temuco, which ends up establishing that given peri-urban areas can project different uses looking to the future, among them, those related with amenity (Figure 3).

As a result of the many pressures that Mapuche communities experience, many landowners have started selling, finding loopholes to sidetrack the prohibition that the law characterizes these areas under. It is for this reason that the second central category accounts for the sense provided by the discourses analyzed, to the crossroads that those who finally end up letting go of their lands face. Among the "legal adjustments" for land sale, the exchange for other land (not necessarily in the peri-urban areas of the city), the lotting of these acquired lands, the permanent resale over time, the organization of the new Mapuche communities, and finally, the demand of regularization of said land by the local government, stand out.

> "It was like these trades, people sold and bought a piece farther away, it was like they exchanged for more land than they had and then that person would buy the lot and divide it into smaller lots. Then they started selling,

8 In Mapuche communities, the lofs correspond to family units where the 'lonco' is the chief or head of the family.

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so the people since there was never a deed, later organized as a neighborhood, and then they started to regulate them" (Man, 40, east area).

"Here they are more houses than permitted, there are 3, 4 houses together (…) so we want to regularize that, but we want the municipality to do it, not us, because that has a cost and we're not going to pay it, because we have paid on being rural in this space, we're like in the middle" (Man, 55, east area).

On the other hand, the change of the spirit of the indigenous law is not just mobilizing the exchange and sale of lands to non-indigenous people, but also within the Mapuche communities themselves. This is how the fact that the Communal Regulatory Plan contemplated as urban, the protected Mapuche land. This is visualized by some landowners as a positive aspect. And facing this reality, they also ask to be treated for all purposes as urban Mapuche communities.

"We are being left as urban and that's because for 10 years now we are… because we don't want to stop being urban, but we want to be treated as urban, but we live as rural. So, what we want (…) is that we don't have any house regularized, because we do not exist in the municipality and if we want to apply for any housing improvements, we can't" (Man, 55, east area).

This shows that for some landowners, the city's spreading onto protected indigenous land opens up alternatives so that the Mapuche communities can take advantage of the supposed benefits of urbanity, among them, those related with getting their own home and the regularization of existing ones. And this does not just imply the projection of high-density residential areas, associated to the extension of the urban sprawl, but also the consolidation of second homes related with summer houses.

Resistance and projections of the fight for land

Regardless of the fact that many Mapuche communities have offered their lands within the conventional land market, what is true is that there are also many landowners who state resistance as an important central category when it comes to structuring discourses regarding the expansion of the city. Although they do not put into perspective the high value their lands have due to the urban growth of Temuco, and the temptation that this means in the context of the Mapuche people with a series of material needs, they express that the resistance within the Mapuche communities of the sector is still strong.

"The idea is being able to resist this, for me, personally, it is a resistance. We cannot say that the money's not attractive, because if they say to me "madame, we'll give you 100 million per hectare", you think about it, because I do need the money. I know that many have sold for needs sake, but I also know that the sale of Mapuche land is bread for today, and hunger for tomorrow" (Woman, 52, west area).

"I think that with Labranza there's nothing else to do, I think they'll keep selling houses, but there are indigenous communities that are quite strong in their requests. I think there's going to be deadlock there". (Woman, 47, west area).

Among the strategies that some Mapuche communities use to resist the power of expansion, mainly from the real-estate market, those related with the legal counsel they receive from organizations that fighting for the rights of this people, stand out, as does the projection of stigma that has followed them over recent decades. Regarding this last strategy, the discourses of Mapuche landowners highlight that the daily trait given to the Mapuche as "terrorists" is used as a means of persuasion when it comes to wanting to impede the work of real-estate companies on indigenous land.

"So, in the end, on not being heard over and over and over again, we had no other choice than to pressure the company ourselves. We stopped the works and since there's a stigma about burning the trucks, the people came up with something and filled plastic drums with water, so that they thought it was fuel and by fear began to negotiate with the manager, the lawyer and some other people" (Woman, 27, north area).

"Because they build a stadium that with could be done with the indigenous law, but they forgot that they couldn't intervene in the normal life of the neighbors, and they impeded the free movement of everyone" (Man, 55, east area).

It must be highlighted that this central category, present in the discourse of the Mapuche landowners, is articulated from a relevant aspect to build resistance strategies to the intrusion of the real-estate market: the defense of the territory as an identity axis of the Mapuche people.

"We don't want to sell in the future to any property developer, nor sell to any outlander (…) Thus, as well as the menokos spaces, those you saw, there are the few that are left (…) in fact the one that's left should be called Menoko de Huetrolhue, because it's in Huetrolhue, it's part of our culture to meet the Menoko, if it dries out, it would lose its identity (…) in fact, the people of the neighborhoods see that as countryside, but not as community (Woman, 27, north area).

In this sense, the loss of Mapuche land implies that an important part of the spirituality of these indigenous communities is diluted forever, breaking with it, the ancestral practices connected to the land and what it gives them. An example of

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this is the *Menoko*, which represents a sacred site for the Mapuche people due to the diversity of medicinal species and, therefore, to the value it has for the good health of the community.

V. CONCLUSIONS

The suicide belt that the peri-urban area of the city was once baptized as, continues being a space sought after and acquired by agents outside Mapuche communities. And regardless of the safeguards that the State tried to establish for the defense of the Araucanian indigenous land, there are currently a series of strategies that have facilitated occupation of these areas, extending with this, spaces susceptible to being included in the land market operating in Temuco.

The discourses of Mapuche landowners of the city's peri-urban areas acknowledge that the permeability of their territory is not only due to the constant pressure the real-estate market exercises for the expansion of the city, or to the displacement of people who intend on experiencing country life, evidencing with it a constantly growing counter-urbanization process inside the commune. Rather, said permeability would be mainly linked to a central dimension: the flexibility in the instruments that regulate and safeguard the ownership of indigenous land.

With this information, the role that the flexibilization of the urban planning instruments plays, following the discourse of the Mapuche landowners, represents perhaps one of the key operational aspects to understand many of the changes that indigenous land has experienced. In this sense, the expulsion tactics of the communities on the edges of the city are no longer related to the use of violent coercion, but rather with the establishing of certain illegal actions which are complemented by regulatory loopholes that allow lax interpretations of the current protection regulations that govern over these areas. Under this assumption, it would be the State itself, represented in the local government of Temuco, that is facilitating the conditions so that indigenous land ceases to exist. In this sense, the regulatory plan becomes a useful planning instrument to access an important part of the indigenous land that surrounds this city.

Despite the pressures exercised on Mapuche areas, facilitated by the active action of the State regarding territorial planning criteria, resistance still persists in indigenous communities, emulating with this, the countless struggles they have had to face over their history to safeguard their lands. The relevance of this central category described in the work is that it shows a type of resistance dynamic that is seen in another type of Mapuche territory, different to the one the literature has commonly focused on, which is fundamentally related with the defense strategies of the Mapuche people in rural areas occupied by forestry companies (Marimán, Valenzuela & Cortés, 205; Pinera, 2014). In this way, peri-urban Temuco has also positioned itself as a new space of resistance. One must not forget that where there is hegemony, there are emerging counter-hegemonic forces, with other narratives and claims.

Considering the results, it can be understood that the protective role of indigenous territory assumed by the State over the last century has vanished in practice when it is seen that the land regulations operate in different directions and on different scales, leaving gray areas for a future introduction of agents from outside Mapuche communities. And this situation becomes even more complex when initiatives that look to modify Indigenous Law 19.253 are discussed in aspects referring to territorial protection and control. The latter is related to the interrupted indigenous consultation process of 2019, which although it is a mechanism demanded by Agreement 169 where the Chilean state commits to directly asking the indigenous community about the legislative and administrative measures that could affect them, the fact that many of the issues proposed are related with land ownership, ends up consolidating the idea of an indigenous peri-urban area that is permeable to new controllers in a not so distant future.

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ENFOQUE Y ALCANCE

Urbano (ISSN digital: 0718-3607 / ISSN impreso: 0717-3997) es la publicación científica del Departamento de Planificación y Diseño Urbano de la Facultad de Arquitectura, Construcción y Diseño de la Universidad del Bío-Bío y se edita desde el año 1998.

Urbano está especializada en temas urbanos-territoriales y su principal objetivo es explorar, la dimensión territorial que adquiere el estudio de la ciudad y el territorio. Urbano está destinada a investigadores y académicos cuyos manuscritos aporten una visión crítica sobre el fenómeno urbano y sus consecuencias en la transformación de las ciudades medias y en el territorio a escala local y regional, principalmente, en el ámbito iberoamericano, pero con una mirada abierta a los problemas existentes en el sur global. Urbano está abierta a la diversidad de enfoques y metodologías, sobre todo a investigaciones de carácter multidisciplinario e interdisciplinario que permitan visualizar la ciudad y la región desde un contexto amplio y aplicable a la gestión urbana y territorial.

Urbano admite artículos científicos resultados inéditos de investigación, tesis de Magíster y Doctorado. También admite revisiones temáticas que aporten conocimiento nuevo sobre temas actuales o conceptos en construcción, que se encuentren dentro del enfoque general de la revista. Esporádicamente publica números monográficos como resultado de convocatorias temáticas o como mecanismo de publicación de ejes temáticos afines de congresos nacionales e internacionales.

Urbano se publica en versión electrónica con periodicidad semestral, en la segunda quincena de mayo y de noviembre, teniendo también versión impresa. Acepta artículos en español e inglés. Los artículos enviados deben ser originales e inéditos, y no deben estar postulados simultáneamente para su publicación en otras revistas u órganos editoriales. El envío de manuscritos presupone el conocimiento y la aceptación por parte de las/os autoras/es de las normas editoriales y de las directrices para autores.

Urbano se encuentra indexada en Scopus, Scielo, Emerging Sources Citation Index, Redalyc, ERIHPLUS, DOAJ, EBSCO, AVERY Index, Latindex Catálogo 2.0, Dialnet, REDIB y REBIUN.

URBANO forma parte de ARLA (Asociación de Revistas Latinoamericanas de Arquitectura) y se adscribe a DORA (Declaración de San Francisco sobre la Evaluación de la Investigación)

POLÍTICA EDITORIAL DE PUBLICACIÓN

Urbano está financiada por el Departamento de Planificación y Diseño Urbano y por la Universidad del Bío-Bío, El Equipo Editorial está comprometido con la comunidad científica para garantizar la ética y la calidad de los artículos publicados.

1. Publicación en Urbano

El envío, el proceso de revisión y el proceso de producción del número en el que se inserta el artículo no tiene costo alguno en Urbano.

La revista lanza convocatorias que definen las líneas temáticas de los siguientes números y que son anunciadas en su página electrónica. Además, la revista mantiene una ventanilla abierta para la recepción de manuscritos que pueden optar a ser publicados en los números que se encuentren en proceso.

Los artículos se reciben en español y en inglés a través de la plataforma digital debiendo ajustarse al formato indicado en las Normas Editoriales y Directrices para autores. El no cumplimiento de estas normas editoriales supone el rechazo del artículo en el proceso editorial o el retracto del artículo en caso de haber sido publicado.

No se aceptarán manuscritos de autores que han sido publicados en Revista Urbano durante un año (2 números) desde la fecha de publicación de su último artículo en la revista (autores y co-autores).

No se aceptarán en la misma edición autores o coautores, en más de un artículo.

Para poder optar a publicar en Urbano es necesario lo siguiente:

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8. Los artículos limitarán a 3 las autocitas de los/as autores/as, y a máximo 4 autores/as

2. El proceso de revisión editorial y por pares

Una vez recibido el artículo, el proceso de revisión se divide en dos partes: revisión editorial y revisión por pares.

En primer lugar, los trabajos recibidos son objeto de una evaluación preliminar por parte del Comité Editorial que revisa el ajuste a las Normas Editoriales y Directrices para Autores, al enfoque de la revista, a la temática de la convocatoria —en caso de enmarcarse en alguna— y el cumplimiento de unos criterios mínimos de calidad y rigor. A partir del 2019 esta labor se realizara complementada con el software de Plagio iThenticate. Esta evaluación puede culminar en el rechazo del artículo o en su avance en el proceso editorial.

Una vez establecida la pertinencia de los artículos, se someten a un arbitraje anónimo por medio del sistema doble ciego. El panel de expertos está conformado por investigadores nacionales e internacionales especialistas en diversas áreas vinculadas al urbanismo externos a la entidad editora, al menos, en un 80%. Para asegurar la objetividad de las evaluaciones, estos expertos no deben presentar ningún conflicto de intereses con respecto a la investigación, las/os autoras/es y/o los financiadores de la investigación. Los artículos revisados serán tratados de forma confidencial. Los expertos realizan la revisión según la pauta de evaluación de Urbano y recomiendan una decisión al editor que plantea tres categorías:

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PUBLICABLE CON MODIFICACIONES (cambios sugeridos por evaluador y editor obligatorios).
NO PUBLICABLE (rechazado).

En caso de discrepancia entre evaluadores, el artículo se envía a un tercer árbitro. Si este proceso de revisión por pares califica el artículo como PUBLICABLE CON MODIFICACIONES el Equipo Editorial establece la necesidad de una segunda ronda de evaluación, en función de los requerimientos de los evaluadores. En caso de solicitar revisiones menores, no es necesaria segunda ronda de evaluación y el Equipo Editorial comprueba que las sugerencias han sido incorporadas.
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Algunos datos de interés en relación a este proceso de evaluación durante el año 2019 son los siguientes:
1. Se recibieron 36 manuscritos de 11 países.
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3. El panel de evaluadores estuvo compuesto por 20 expertas y 29 expertos de 12 países de Hispanoamérica, Europa y Oceanía.
4. El periodo medio de evaluación por artículo es de 3,9 meses.
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FOCUS AND SCOPE

Urbano (Digital ISSN: 0718-3607 / ISSN printed: 0717-3997) has been published scientific by the Department of Planning and Urban Design at the University of the Bío-Bío since 1998.

Urbano specializes in urban-territorial issues and its main objective is to explore, the territorial dimension of the study of the city and the territory. Urbano is open to a variety of approaches and methodologies, especially to multidisciplinary and interdisciplinary research that makes it possible to visualize the city and region from a broad context that is applicable to urban and territorial management. Urbano is intended for researchers and academics whose manuscripts provide a critical vision of the urban phenomenon and its consequences for the transformation of medium-sized cities and territories at the local and regional level, mainly in the Ibero-American arena, but also regarding the existing problems in the global south.

Urbano accepts scientific articles on unpublished research results, master's and doctoral theses. It also publishes review articles that are within the journal´s general focus and contribute new knowledge on current issues or concepts currently in development.

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Urbano's Editorial Team is committed to the scientific community and to ensuring the ethics and quality of the articles published.

1. Publication in *Urbano*

Urbano does not charge authors any fees for submission, the article-review process or issue production

The journal launches calls for papers that define the thematic lines of the following issues and are announced on its website. In addition, the journal maintains an open window for the submission of manuscripts that can then be published in issues that are in the process of publication.

Articles may be submitted in Spanish or English via the online platform and must conform to the format indicated in the Editorial Norms and Guidelines for Authors. Failure to comply with these editorial norms means the article will be rejected during the editorial process or retracted if it has already been published.

Manuscripts of authors who have been published in the Urbano Journal during the last year (authors and co-authors) will not be accepted (2 numbers).

Authors or co-authors in more than one article will not be accepted in the same edition.

To be eligible to publish in *Urbano,* the following are required:

1. Articles must be written in scientific format and be the results of the author´s own research. *Urbano* does not publish applied research articles.
2. Articles must be unpublished and must not simultaneously be before another journal or editorial body for consideration.
3. *Urbano* opposes academic plagiarism and therefore rejects any article with fraudulent data, compromised originality or duplicate submissions.
4. Articles must omit all references to the identity of the author(s) within the text. The names and affiliations of the author(s) should be given on the online platform.
5. Articles must not cite the sources of research funding in the text, but rather in a footnote on the first page of the article. The names and affiliations of the author(s) should be given on the online platform.
6. Articles must include the bibliographic citations to the research on which the paper is based and these must be compiled in a final "References" section.
7. Articles must include a minimum of 20 bibliographic references, of which at least one third must be less than or equal to 5 years old.
8. Articles are limited to 3 author self-citations and a maximum of 4 authors.

2. Peer and editorial review process

Once the article is received, the review process is divided into two parts: editorial review and peer review.

Firstly, papers are subject to preliminary evaluation by the Editorial Committee, which reviews the article´s conformity to: the Editorial Norms and Guidelines for Authors, the journal´s focus, the theme of the call for papers in the case there is one, and compliance with minimum criteria for quality and rigor. As of 2019, the plagiarism software iThenticate will also be used to complement this evaluation, which may culminate in the rejection of the article or its progression through the editorial process.

Once the pertinence of an article has been established, it is subject to double blind peer evaluation. The panel of experts is comprised of national and international researchers unaffiliated with the publisher in 80%, who are specialists in different areas related to urban planning. These must not have any conflict of interest with respect to the research, the author(s) and/or the financers of the investigation. All evaluations are objective, and the reviewed articles will be treated confidentially. Experts carry out reviews according to the *Urbano* evaluation guidelines and make one of three recommendations to the editor:

PUBLISHABLE (changes suggested by the reviewer are optional and those of the editor are mandatory).
PUBLISHABLE WITH MODIFICATIONS (changes suggested by evaluator and editor are obligatory).
NOT PUBLISHABLE (rejected by peer assessment)

If there is any discrepancy between evaluators, the article is sent to a third to arbitrate. If this peer assessment process considers the article to be PUBLISHABLE WITH MODIFICATIONS, the Editorial Team establishes the need of a second assessment round, depending on the evaluators' requirements. If minor revisions are requested, a second round is not necessary and the Editorial Team confirms that the suggestions have been included. If major revisions are requested, the article is sent to a second round of assessment. The editorial team, in both cases, sets a period to receive the corrections of the article. If, after the second round, major revisions are requested again, the article will then be rejected.

The result of the peer assessment, is made clear to the authors, through the sending of the respective assessment guidelines (in anonymous format).

Some data of interest in relation to this evaluation process during 2019 are the following:

1. 36 manuscripts were received from 11 countries.
2. The rejection rate of the articles in 2019 was 28,8% of the articles received in the first editorial review process, and 37,7% of the articles received in the peer review process.
3. The panel of evaluators was composed of 49 male and female experts from 12 countries in Latin America, Europe and Oceania.
4. The average evaluation period per article is 3.9 months.
5. 12 articles were published in the last two numbers.
6. The evaluation guideline is accessible by potential authors.

3. Open access policies

Urbano publishes the Post-Print version of the article in open access format in their institutional archive.
Urban authorizes the authors to disseminate through their personal electronic pages or through any open access repository a copy of the published work, together with which the cited article must be included in its entirety — including year, title full, name of Urbano, number and pages where it was published by adding, in addition, DOI and / or the link to the article on the Urbano website.

4. Data archive

Urbano uses the LOCKSS system to create an archive system distributed between collaborating libraries. This system allows creating permanent files of the journal for conservation and restoration purposes.

Urbano includes the bibliography cited in each article as an exportable field in **Dublin Core format as per the OAI-PMH protocol**.

5. Copyright and licenses

The content of the articles which are published in each edition of Urbano, is the exclusive responsibility of the author(s) and does not necessarily represent the thinking or compromise the opinion of the University of the Bio-Bio.

The author(s) conserve their copyright and guarantee to the journal, the right of first publication of their work, which will simultaneously be subject to the Creative Commons Recognition License CC BY-SA, which allows others to share-copy, transform or create new materials from this work for non-commercial purposes, as long as they recognize authorship and the first publication in this journal, and its new creations are under a license with the same terms.

PUBLICATION ETHICS POLICY

1. Responsibilities and rights of the author(s)

The authors, on sending the manuscript, must send a document where they responsibly declare:

1. That all the author(s) have significantly contributed to the research and/or writing of the article.
2. That the information of the research is original, their own and authentic.
3. That they transfer to Urbano, the rights of public communication of their manuscript for its dissemination and use in the Open Journal System, or any other social network or online portal which the Editorial Team chooses. This is for the online consultation of its content and its abstract, for its printing in paper and/or for its download and archiving, all this under the terms and conditions specified on the platforms where the work is housed.

The author(s), after the rounds of peer evaluator review, must include the suggestions or argue against their rejection, attaching a letter of response to the revisors, explaining the modifications of the manuscript, within the period requested by the editor

The author(s), throughout the editorial process, must include the formal corrections and grounds requested by the Editorial Team.

The author(s), throughout the editorial process, are entitled to withdraw their article from the editorial process, justifying this decision to the Editorial Team.

The author(s), after the style revision process, are entitled to review the last version of the text before it is published. The approval of this version, entails the closing of the text for its diagramming and publication, with no possibility of making changes later.

2. Editorial responsibilities.

The Editorial Team must take into consideration for the publication all the manuscripts sent, basing their decision on their scientific contribution and the compliance of the editorial standards.

The Editorial Team must seek expert evaluators in the specific area of the manuscript, preserving at all times, the anonymity of the author(s) and the evaluator(s) and the academic and scientific nature of the publication.

The Editorial Team must remain in constant contact with the external evaluators and authors, duly clearing up all doubts that arise during the editorial process.

The Editorial Team has the complete authority to accept or reject a manuscript. The reasons why they give this verdict may be the following:

1. If the article does not fit the topic of the call and/or the general approach of Urbano.
2. If the article does not fit the editorial standards and/or the guidelines for authors.
3. If the article does not fit the minimum standards of scientific quality and/or rigor.
4. If the article receives negative evaluations in the peer evaluation rounds.
5. If the article does not incorporate the suggestions of the evaluators or requests of the Editorial Team within the set periods.
6. If the article receives requests for major modifications in the second peer review stage.

The Editorial Team must publish corrections, clarifications, retractions and apologies when so required.

The Editorial Team must not have any conflict of interest regarding the articles sent and must watch that the evaluators do not have any regarding the research they are evaluating.

The Editorial Team must guarantee that the articles published in Urbano comply with the ethical criteria for scientific publications established by the Committee on Publication Ethics (COPE) not permitting academic fraud, including fraudulent data or the plagiarism or autoplagiarism of articles which are considered to be relevant parts of the contributions. The detection of these practices will lead to the rejection or immediate withdrawal of the article.

The Editorial Team must aspire to constantly improve and update the journal.

3. Responsibilities of external evaluators.

The evaluators must reject assessments requested by the Editorial Team when they do not have enough competence, experience and knowledge of the specific matter of the manuscript.

The evaluators must report potential conflicts of interest to the editorial team.

The evaluators must make an objective analysis of the manuscripts they are reviewing, giving grounds for their comments and doing this within the period established by the Editorial Team.

The evaluators must maintain the confidentiality of the manuscript during the editorial process with it not being possible to disseminate it or use its content.

The evaluators must keep their relationship with the manuscript confidential.

URBANO

Número 42/Number 42
Publicación semestral/Biannual publication
Noviembre 2020/ november 2020
www.revistaurbano.cl

Publicada por/Published by
Departamento de Planificación y Diseño Urbano. Facultad de Arquitectura, Construcción y Diseño. Universidad del Bío - Bío
Concepción. Chile
ISSN impreso: 0717 - 3997
ISSN online: 0718 - 3607

Urbano es la revista editada por el Departamento de Planificación y Diseño Urbano de la Universidad del Bío - Bío. Urbano se plantea como una publicación semestral especializada en temas urbanos-territoriales, destinada a explorar la dimensión científica y de investigación que adquiere el estudio de la ciudad y el territorio. Se publica en versión impresa y electrónica, con periodicidad regular y salida en los meses de Mayo y Noviembre. La revisión de artículos es realizada por pares evaluadores externos, de forma anónima
Urbano está destinada a investigadores, profesionales y académicos, y su propósito establecer una visión crítica sobre el fenómeno urbanizador con especial énfasis en la transformación de las ciudades medias y el territorio a escala regional y local. Urbano publica trabajos inéditos y está abierta a la diversidad de enfoques y metodologías, resaltando investigaciones de carácter multidisciplinario e interdisciplinario que permitan visualizar la ciudad y la región desde un contexto amplio y aplicable a la gestión urbana y territorial.

Urbano está financiada por la Facultad de Arquitecturas Construcción y Diseño, a través de la vicerrectoría Académica de la Universidad del Bío-Bío y a través de Programa de Información Científica CONICYT /Concurso Fondos de Publicación de Revistas Científicas 2018/ Proyecto Mejoramiento de Visibilidad de Revistas UBB (Código:FP180007)

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