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azazo@ubiobio.cl

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Alarcón-Rodríguez, Mabel Loreto; Delpino Chamy, Montserrat;
Fernández-Castillo, Sandra Valeska; Soto-Abarzúa, Jocelyn
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AGROECOLOGICAL PRACTICES IN RURURBAN TERRITORIES OF THE CONCEPCIÓN METROPOLITAN AREA: CONTRIBUTIONS OF THE SOCIAL AND SOLIDARITY ECONOMY TO URBAN SUSTAINABILITY

Agroecology has been flourishing in Latin America and the Caribbean. This flourishing has also had an effect on the public policies in several countries across the region (FAO, 2017). These practices, particularly in Chile, have been promoted by the State, through the Food and Fisheries Development Institute (INDAP, 2017), although the emphasis has been placed on promoting organic production practices, which solely represents one aspect of agroecology, given that this comprises the meeting of three lines: being consolidated as a scientific area, as a set of agricultural practices and as a social movement. The experiences in Brazil, Argentina, Costa Rica, El Salvador, Bolivia, Colombia and Chile have been increasing in recent decades. In our country, what we will later call the “agroecological transition” is associated more to revaluing peasant and indigenous values, which have not always been associated to a view of sustaining biodiversity (FAO, 2017). At a global level, Via Campesina (VC) or the “peasant’s way”, has implemented training programs in the Latin American Agroecology Institutes (IALA) which are constantly emerging in the region. VC adopted agroecology at the end of the 2000s as an essential pillar of their food sovereignty proposal, giving agroecology a political tone. Today, many agroecologists consider agroecology as a transforming science that must be implemented through close dialog and interaction with groups of producers representing a constant process of cognitive, technological and sociopolitical innovation. Thus, this new movement is being built based on reciprocity to the social and political processes and movements (Via Campesina, 2018).

I. INTRODUCTION

The Metropolitan Area of Concepción (AMC, in Spanish) is the second largest urban area in Chile (INE, 2017). The area comprises greatly urbanized spaces, that cover around 66% of the surface area, which coexist with areas where family-based agriculture - traditionally a rural activity - persists, generating rururban spaces as a mix of both models. These areas have been greatly strained in recent decades by the urban growth model, that has promoted major property developments on the outskirts, jeopardizing their future and their contribution to metropolitan life, given that they provide the metropolis with a relevant percentage of the vegetables for human consumption.

From this premise, this research looks to add to contemporary discussions regarding what the characteristics of agricultural practices identified on the rururban edge of the Metropolitan Area of Concepción, that have allowed these to remain within the Metropolitan Setup, are and what their contributions towards the sustainability of the metropolis are. To answer the question, the study suggests that in the rururban territory of the study area, there are agricultural practices that can be considered from an agroecological approach as an integrated contribution towards the sustainability of the metropolitan area, and that their knowledge, focused on value and protection, is essential for the quality of the metropolitan ecosystem.

The study’s main goal is getting to know the areas where urban agriculture takes place in the Concepción Metropolitan Area, analyzing their practices from an agroecological approach, as an expression of Social and Solidarity Economics, to promote their position of value as a contribution to the sustainability of the Metropolitan Urban System. The following specific goals are set out to reach this:

1. Understanding the evolution of urban agriculture in the Concepción Metropolitan Area.
2. Identifying specific practices associated to agricultural activity, from an agroecological approach.
3. Contributing to valuing these areas and the agricultural practices that take place there, as a contribution to the sustainability of the metropolitan urban system of Greater Concepción.

II. THEORETICAL FRAMEWORK

Tensions in the current metropolis: periphery, rururbanity and opportunities for the Social and Solidary Economy.

Metropolitization and formation of periurban and rururban territories

Metropolitan areas have specific complexities, derived from comprising different interrelated urban hubs, which form multifunctional units (Rojas et al, 2009). Regardless of the context these are found in, they are characterized by an administrative structure which considers different entities, and in many cases contain urban and rural areas, which do not always have a suitable or balanced relationship (Rosas & Zúñiga, 2011), given that the current trend has been the urban reigning supreme over these lands. In Latin America, 57% of the total urban population is concentrated in metropolitan areas. In the case of Chile, there are three (3) acknowledged metropolitan Territorial Planning Instruments (IPT in Spanish), namely the Santiago Metropolitan Regulator Plan (PRMS), the Concepción Metropolitan Regulator Plan (PRMC) and the Valparaíso Metropolitan Regulator Plan (PREMVAL). These areas comprise communes with different balances between urban and rural areas, and in recent decades, they have had an important weight in terms of urbanization at a domestic level. Currently, at least two great trends can be seen in the Chilean case regarding metropolitan growth. On one hand, the suburban growth

processes, which support the urban extension towards rural areas, many based on low density property development, which ends up forming an urban system that is spread out and fragmented in the urban periphery (Borsdorf, Hidalgo, & Sanchez, 2007; Cerda & Marmolejo, 2010). On the other hand, we find the renewal processes of consolidated urban sectors, which generate polycenters (García-López, 2011; Rojas, Muñoz, & García-López, 2009), many of which are high density. It is possible to identify intermediate space between both paradigms, which remain in a certain latency, given that they have forms of living which link rural and urban legacies. These areas have been called rururban and have the capacity of acting as links between the compact city and the rurally located territories (Cardoso & Fritschy, 2012; Segrelles, 2015).

It is possible to see family-based local scale agricultural practices in these spaces, which stamp a singular character and identity, where the agricultural spaces and the means of occupying and living in them become important, as well as the models of economic exchange, social organization and appropriation of the land which show socioenvironmental values that are being rigorously analyzed. In the local context, these areas are greatly strained, on one hand by pressures to change agricultural uses to urban uses, and on the other, by the lack of specific policies which make these areas visible. This has led to the marginalization of these spaces and their precariousness, jeopardizing them, contributing towards strengthening conflicts which end up weakening the family-based collaborative agriculture they provide (Curzio de la Concha, 2008; Galindo & Giocoli, 2013; Segrelles, 2015).

Agroecology in the Social and Solidarity Economy

Social and Solidarity Economy (ESS in Spanish) suggests that the fundamental goal of the economy is to satisfy the basic needs of the entire community, eliminating pockets of poverty and marginalization, while gradually increasing the wellbeing of everyone. As an articulating principle, it is suggested that all economic activities have to be ecologically and socially sustainable, that is to say, having a high degree of autonomy, being subject to the political decisions of the community and being oriented towards high levels of self-sufficiency, thus reducing exchange to the local or regional level (Coraggio, 2008; Da Ros, 2007). Socio-economic, cultural and ecological practices like those of fair trade, cooperativism and agroecology are all included under the conceptual umbrella of ESS (Coraggio, 2008; RIPESS, 2015; Cid & Latta, 2015). Agroecology, from a scientific research approach, implies the broad study of agro-ecosystems and food systems (Petersen, 2013; CIDSE, 2018). In socio-economic and political terms, it represents a means of linking players with goals that go beyond the mere commercialization or exchange of products, and gathering in essence, the simultaneity between economic practice and social movement (Miró i Acedo & Fernández, 2016). According to Altieri (1999), this is possible because agroecology promotes ways of collective participation-action that allow local communities to produce and sell food, offsetting the current socioenvironmental crisis (Sevilla & Woodgate, 1997).

For Gómez, Ríos-Osorio & Eschenhagen (2015), agroecology acknowledges the existence of agro ecosystems, which have diverse

roles associated to sustainability, so they can satisfy the productive goals of an organization: working with supplies from the immediately surrounding areas, promoting resilience and adaptability to changing contexts, promoting the persistence of social organizations, under an equality based approach. It also covers the food sovereignty approach, proposed by the Via Campesina movement in 1996, as an alternative to the high current dependency of agroindustry. This was conceptualized in the International Forum on Food Sovereignty in 2006 as “the right of people to suitable food from a health and cultural point of view, through sustainable and ecological methods and their right to define their own food and agricultural systems”. Likewise, for Rivera-Ferre & Ortega-Cerdà (2010), agroecology includes criteria associated to the access to resources for production, specific expressions of the production model, transformation and commercialization processes of products with a territorial logic, legal approach to food, and agricultural and social society organization policies towards the promotion of these.

III. DEFINITION OF THE STUDY AREA AND SELECTION OF CASES

The study area corresponds to the Concepción Metropolitan Area (AMC), which has a surface area of 2,830.4km², equivalent to 0.35% of the Biobío Region, and more than 1.3 million inhabitants, spread over eleven (11) communes, nine (9) of which are on the outskirts, with 65% of the total population. Seven (7) are coastal and four (4) are inland. The metropolization began at the start of the 20th century, when Concepción and Talcahuano began to form a conurbation, given their relationship of regional capital and port, respectively (Salinas & Pérez, 2007; Aliste & Almendras, 2010). This was increased by the development of industrial cities like Tomé and Penco in the north, and Lota and Coronel in the south; initially associated to mining, then the textile industry, forest plantations for pulp production and byproducts, energy and industrial fishing. Three (3) Territorial Planning Instruments (IPT in Spanish) have been generated in the metropolization process. The first was 1963's Intercommunal Plan, which focused analysis on the growth between Concepción and Talcahuano, and included the so called “Satellite B”, corresponding to Coronel (Salinas & Pérez, 2007). In 1980, the Concepción Metropolitan Regulator Plan was implemented. This included the conurbation towards the north and the commune of Penco, towards the south and the current commune of San Pedro de la Paz, and towards the east, until the commune of Hualqui. The instrument was updated in 2002 and currently includes the 11 communes of the Province of Concepción, solely leaving the commune of Florida out. It is currently in a new modification phase (Figure 1).

The AMC's territory is recognized by its geography comprising coastal plains and a complex hydrological system formed by marshlands, wetlands, lagoons and the Bio-Bio and Andalién Rivers, added to a set of multiple run-offs which feed the system from the slopes of the Coastal Mountain Range, that flanks it to the east. Its coastline is cut in many sectors, forming a complex system of peninsulas - Coliumo,

Tumbes, Hualpén - and bays like Dichato, Concepción, San Vicente, Coronel and Lota, from north to south, along with extensive beaches. The islands of Quiriquina and Santa Maria complete the metropolitan territory, stamping a singular character within the country's central-southern coastal system. The urban areas within this complex territorial system have developed in a fragmented fashion, mainly due to the orography and morphology of the hydrological system. The presence of the Bio-Bio river, the country's widest, 2.5 km at its widest point, and an average of 1 km width along its length, and the second largest flow in the country, defines the lands to the north and south of the AMC. While on its north bank one can find the communes of Concepción, Hualpén, Talcahuano, Chiguayante, Hualqui, Penco and Tomé, to its south those of San Pedro de la Paz, Santa Juana, Coronel and Lota are located. Both banks share urbanization processes determined, in general, by the development of the industrial and port areas, which generated articulated urban systems (Salinas & Pérez, 2011). Meanwhile, on the north side, the highest densities are produced in the urban centers of the cities of Concepción and Talcahuano, with lower densities towards the northern and eastern peripheries. In the south, the highest densities are found in the historic hubs of the towns of Lota and Coronel, with lower densities towards their peripheries and borders with the commune of San Pedro de la Paz, as can be seen in the following figure.

The choice of the case studies was done using the prior history of agricultural areas in the study area, to contrast them with the revision of *Google Earth* satellite photographs, reviewed between 2016 and 2017. Using this as a starting point, sectors were visited and contact made with the farmers, their families and representatives of related organizations. Finally, the decision was made to use as case studies the sectors of Tomé Alto, in the commune of Tomé; Cosmito, in the area between the communes of Penco and Concepción; Boca Sur, in the commune of San Pedro de la Paz and Lagunillas, in the commune of Coronel, given that these have common singular characteristics that allow their comparison. The cases chosen were georeferenced using QGIS 2.0 software, using the Ubuntu operating system, based on an open code GNU/Linux platform. Their distribution was ordered by commune in the following table and figure.

IV. ANALYSIS METHODOLOGY

The methodology used for the analysis of the agricultural practices in the studied cases is mixed, quantitative and qualitative. The quantitative analysis was based on the location of the sectors, the determination of their size, the size of the strips of land, the number of farmers involved in the activity, and a list of the types of crops, types of tools used, types of production-commercialization chains, and types of organization, including number of members in the organizations.

Meanwhile, the qualitative analysis was based on semi-structured interviews to inhabitants of the agricultural areas, and farmers, which allowed collating their visions about the present and future of the activity and the associated means of life. A 20-page PENDIENTE survey was also applied which allowed identifying the main characteristics of the agricultural practices in the cases studied. The

responses were analyzed and, from these, three (3) aspects were classified: the technical-productive aspect, the territorial aspect and the sociopolitical aspect. Common criteria were identified in each one of the dimensions, ending with a total of ten (10). Once these criteria were identified, it was possible to develop a discussion about the contribution these forms of agricultural development represent for the Concepción metropolitan area as a whole, the need of valuing them, starting possible strategies, and the opportunity and scope that being able to replicate any of these actions would represent in the case of other metropolitan areas at a national and/or international level, where there are communities and territories with potential for agricultural development under agroecological approaches.

V. RESULTS

Location of agricultural areas in the Concepción Metropolitan Area's rururban area.

The case studies correspond to the edges of urbanized areas from a planning point of view, in the communes of Tomé, Penco, San Pedro de la Paz and Coronel. The urbanized areas in their setting are mainly residential growth areas for middle and low classes. This determines landscapes with common traits for the cases, like low height and medium density homes, precarious or very limited public spaces, presence of wild untouched strips of land, or with buildings that are either rundown or in ruins, micro landfills, a variety of basic simple infrastructure, and in some cases with unpaved roads, high voltage pylons, etc. To sum up, a pretty similar image to one which could be found on the outskirts of many Chilean cities.

The distinctions are based on the internal structure and topography of the areas. In the case of Tomé Alto, the agricultural practices analyzed occur in a gorge found on both sides of the hills in an east-west direction. The space has been managed by the Tomé Organic Horticulturist Communal Union (UCHO in Spanish), an organization that rose up in the 1990's through the work of the NGO, CET-Sur. The people involved in the agricultural activity live in areas away from the gorge and the activity is done in an organized fashion.

In the case of Cosmito, this is flat sector located on one side of route 150, which links the communes of Penco and Concepción. It is a large strip of land, broken off from the old Cosmito Hacienda, which belonged to Penco's Commercial Sugar Refinery Company. The agricultural work organization is a landowner-worker system. The land's administrator lives onsite, and the workers live in surrounding areas, travelling daily to go to work.

In the case of Boca Sur this is a plain on the edge of the Los Batros Wetland, in the commune of San Pedro de la Paz. It is sector where around 50 families live, who are dedicated to agriculture. It is the most relevant case identified, given the surface area set aside for agricultural development, the number of families involved, and the community organization with political presence in the current discussion about the valuation and permanence of these practices. Finally, in the case of Lagunillas, in the commune of Coronel, this is also a plain on the fringes of a coastal wetland. It is much smaller in size than Boca Sur and has fewer people involved in the practices, given the progress of property development in the sector.

Regarding the soil use and the Territorial Planning Instruments, the cases of Tomé Alto, Cosmito and Lagunillas fall within Urban Extension Areas (ZEU in Spanish) in the Metropolitan Regulator Plan, which allows, in the future, urban growth, mainly for residential use. The case of Boca Sur is the only area which has been labeled as a Horticultural Production Area (ZPH, in Spanish) in the Communal Regulator Plan. This has contributed to it remaining, but currently, it is being threatened by metropolitan scale infrastructure projects.

Development dimensions of agricultural practices in the studied cases, from an agroecological approach.

The first dimension refers to the technical-productive aspects. First of all, it highlights obtaining water resources from natural sources, as all the cases studied are located close to water bodies. In the case of Tomé Alto, this is obtained from a spring which runs to the bottom of the gorge. In Cosmito, from the estuary of the same name. In the case of Boca Sur and Lagunillas, from wetlands.

Second, all cases have a small-scale production. The farmers favor growing following seasonal production cycles, even though the periods can have peaks, like in the case of Cosmito and Boca Sur, in Concepción and San Pedro de la Paz, respectively, mainly associated to growing leeks, lettuce, chard, cilantro, parsley, radishes, which falls in the fall, spring and summer season. This small-scale production has three (3) variables: intensive seasonal production, referring to growing different species, which have a rotation of three (3) and four (4) times a year; sporadic production, which is only done in some periods of the year; and family self-consumption, which may be mixed and is not sold.

Third, there is a use of harmless supplies, with few agrochemicals and low dependence on fossil fuels for growing and harvesting processes. Finally, a low technological level was revealed, considering how the farmers worked, with human and animal labor mainly used, simple sowing, harvesting, cleaning, gathering and product loading techniques, establishing orderly and easily recognizable circuits within each one of the lots.

A second important dimension in the agricultural development of the rururban AMC is the territorial aspect, understanding this from four (4) variables. First, territoriality, which is expressed in short production-commercialization chains, mainly within the Concepción Metropolitan Area, with four (4) modalities: a. Sale through intermediaries who buy directly at each lot. b. Sale to commercial establishments, supermarkets, stores or markets, which the producers do from their land to the destination. This method stands out in the sales to the Monumental Market in Concepción, by volume and frequency. c. Direct sale to end consumers onsite and in street markets in the communes, like in the case of Boca Sur and Candelaria in San Pedro de la Paz. d. Sale to social establishments, like schools, among others.

Second, the limited contamination is seen as a result of low use of contaminating supplies, as well because the waste, which is mainly organic, is recycled or disposed of on the land itself, as compost or through controlled burning.

Third, biodiversity stands out, given that the setting's soil, water and air systems are intervened without great invasiveness. In general, different types of vegetable crops are grown, but on using a limited

amount of agrototoxic materials, the ecosystems where the sectors are located that, as we have already mentioned, have specific aspects mainly in soil types and associated hydrological systems, are better preserved.

Finally, resilience is revealed, as a contribution to the economic crisis situations or natural disasters, as they provide food and water to the population. In all the studied cases, resilient solidary practices were identified, some of which were used during the earthquake on February 27th 2010 like, for example, the provision of food and water to the families, a positive response to flooding events, among others, as was clear in the case of Boca Sur.

The last dimension analyzed was the sociopolitical aspect, where three (3) criteria stand out. The first of them, associativity, is expressed in the survival of traditional practices to organize the work, like stocking, rental, ceding areas for agreed periods, among others. Likewise, most of the farmers interviewed and listed belong to some territorial or productive organization and their relationships are long-term, where three (3) levels are highlighted: associativity between similar local producer organizations, associativity between educational centers and organizations including the sector's communities, and finally some links with State institutions, which are complicated as many producers are not owners of the lands they farm. The most relevant cases regarding associativity are: the Biobio Horticultural Union, whose leaders are the farmers of the Boca Sur sector in San Pedro de la Paz, and the Organic Horticulturalist Communal Union (UCHO) in the Tomé Alto sector in the commune of Tomé. The importance of family-based organizations as the basis for the activity is also seen.

The second relevant criterion is the permanence of the family and/or community-based organizations through balanced relationships which contribute towards the social reproduction of the practice. The oldest sector is Boca Sur, where agricultural occupation dates at least back to the mid-19th Century. Cosmito is next, from the 1940s, and finally Tomé Alto, where there has been agricultural use since the 1990s.

Finally, in all cases, the farmers' critical posture against the agroindustrial model and urban development and the threat against the practices and spaces where these take place, is highlighted. In this criteria, the mobilization that farmers from the Boca Sur sector have led to defend the Los Batros Wetlands and their farmland stands out against the effect the Pie de Monte Road Project and Industrial Bridge promoted by the Public Works Ministry (MOP in Spanish), to provide a more expedite connection for the forestry production to the south of the AMC and external areas, to the ports of the Metropolis. Meanwhile, the Organic Horticulturalist Communal Union permanently takes part in seed bank and environmental training activities at a local and metropolitan level.

VI. DISCUSSION

Metropolitan areas: acknowledging the heterogeneity of production practices.

The two metropolitan growth trends that can be seen in the Chilean case (urban extension towards rural areas and renewal processes

of consolidated urban sectors) have captured most of the attention in contemporary urban studies, often evading acknowledging intermediate spaces, areas with means of living which combine rural and urban legacies - areas that we have called rururban areas. Secondary information and fieldwork allow acknowledging that agricultural areas in the AMC represent a set of interstitial spaces within the metropolitan fabric, with a high value that is even heritage in nature, but that are very precarious. These spaces end up being invisible both at a territorial planning level and in the eyes of the visitor, even those of metropolitan inhabitants. This invisibility plays a double role. In some cases, the prevalence of rururban values has been favored, but in others it has transformed them into spaces that are easily preyed upon by the overbearing urbanization model. The studied areas, although Territorial Planning Instruments do not include them, are characterized on having completely rural activities. The only area identified as a Horticultural Production Area, the Boca Sur Neighborhood stands out as a highly productive area in types of vegetables, with production methods in agroecological transition, i.e., that contain only some fundamental elements of the agroecological paradigm, as was discussed in this article's conceptual framework, such as the low-scale production, local consumption and commercialization, low energy consuming and preferably biodegradable.

The role of Territorial Planning

It is known that territorial planning involves diverse areas, each one with a different emphasis when it comes to making decisions regarding land use. The agents should agree on this decision-making, the techniques and instruments to be used and the different dimensions regarding how to reach a genuine citizen participation. If we consider planning as a process, as part of human thinking, which seeks action with foresight, it is possible to suggest the need of introducing modifications to the territorial planning tools, at a local scale, in the Communal Regulator Plans (PRC in Spanish) and in the Metropolitan one, that is to say, in the Concepción Metropolitan Regulator Plan (PRMC). The creation of Special Areas within the PRMC is suggested, ones which consider not just the economic activity that goes on there, as in the case of the ZPH which governs for the case of agricultural lots in the Boca Sur Sector in San Pedro de la Paz, but also that includes social, community-based and environmental components seen in the sector, like the typologies of parceling, the edified systems, the type of rururban setting that this generates, among other aspects. These Special Areas could be called Urban Agroecological Areas (ZAU in Spanish) and could comprise an alternative to the PRMC's zoning regarding the Consolidated Urban Area (ZUC in Spanish) and the Urban Expansion Area (ZEU in Spanish), looking to slow down urban growth through building and infrastructures (Figure N°10).

As it has been seen in recent decades, urban growth left to the free will of the urban land market, forms the city's construction in plots, thus strengthening spatial, social and environmental segregation within large metropolis. Making an in-depth analysis of the areas where it is possible to identify modes of rururban life, associated to small-scale agriculture in all the communes of the AMC, is proposed. This analysis would allow placing value not only on the sectors

studied in this research, but on the entire metropolitan area, given that we know there are many other invisible sectors, probably just as much under threat as those studied here, and which contain similar environmental and territorial values. This analysis could also allow the creation of an Agroecological Map in the AMC, which places value on not just the edified urban growth (regardless of its usage), but also on the growth and regeneration of building-free areas within the metropolitan system, freeing the edges of the edified areas and urban peripheries (Hinojoza & Sánchez, 2015) like in "interstitial" spaces (Méndez et al. 2005) which provide important ecosystemic systems for the overall sustainability.

Another of the products of this analysis and of placing value on the rururban territories, could be the implementation of an Agrarian Park protection-type figure (Simón, Zazo & Morán, 2017), within urban management and planning, both on a local and metropolitan scale. This would allow including learning that has already been made about this type of planning figure in other contexts, especially in Mediterranean European countries, like Spain or Italy. The interest of this approach is based on considering multiple dimensions present in the Agrarian Parks, that include social, economic, environmental and urbanistic components. They imply urban scale economic development areas and can contribute towards improving the economy of a given community, as well as contributing to the urban environment, and forming local markets under the paradigm of the Social and Solidarity Economy.

Building sustainability from the local up: Territorialized Networks.

The social economy is a theoretical and practical search for alternative ways to create economy, based on solidarity and work. The main aspect of these economies is the introduction of growing levels of solidarity throughout the agricultural process, from the production, passing through the sale until the consumption. The areas studied in this research are using production practices which can be rated as being in "agroecological transition".

The union and production organizations (for example, the Bio-Bio Horticulturalist Union Association, whose leadership is formed by farmers from the Boca Sur sector, in San Pedro de la Paz, and the Organic Horticulturalist Communal Union (UCHO), in the Tomé Alto sector in the commune of Tomé) are contributing towards building a current that looks towards promoting more sustainable agrofood systems, a current which has already been promoted by different social organizations at a macro level (for example, the aforementioned Via Campesina), which have presented a critique of the diverse rural and agrarian development models which have dominated in Latin America since the sixties.

However, this route has been marked by obstacles and contradictions, which take on different faces in the local setting, where interests of committing to disseminating a genuinely agroecological proposal are blended (Petersen, 2013). Here we look at the challenges that increasing the scale of the different agroecological projects implies, i.e. passing from a small-scale production for self-consumption to production for sale or exchange. In this sense, the suggestion is made to find a synergy between the Social Economy organizations, looking to identify complementary aspects and agree on solidarity actions, for example, through the

creation or strengthening of local and regional networks that include producers, distributors, spaces for sale (such as local markets) and of responsible consumers. In this context, the agroecology practiced in rururban spaces is presented as the certain possibility of improving the resilience and durability of agrofood systems, while promoting spaces for social integration as a neighborhood and community level.

A detailed analysis of the results obtained allows identifying an underlying relationship between the origin of the projects studied, the associative structure they have adopted and the effectiveness of the results associated to the proposed agroecological indicators. In general, in 2 out of 3 experiences analyzed, the base organizations have been key for building associative networks, presenting a critical posture towards the agroindustrial model that, in Chile, has taken on an extractivist character. Likewise, in those cases with consolidated base organizations, after several decades, the agroecological experiences have been acknowledged by local public policy and incorporated into the territorial planning tools. This corroborates the importance of strengthening civil society in agroecological practices, as agents who are capable of leading productive, ecological and social processes, generating suitable proposals for the sustainable organization of the cities (Soler & Rivera, 2010). To aim at this, the research created a participative mapping with the relevant territorial players, which allowed locating the main points of interest for producers, sellers and consumers, as can be seen in the following figure.

VII. CONCLUSIONS

The research allowed answering the questions initially set out of whether agricultural practices used in the Concepción Metropolitan Area can be considered as agroecological, given that more than ten (10) criteria associated to the means of providing agricultural activity, which correspond to agroecological approaches, were recovered. On the other hand, it was possible to identify three (3) specific dimensions where these practices can contribute to the sustainability of the Metropolitan area, considering the economic, environmental and social dimensions as pillars of sustainability. Regarding the hypothesis, it could be demonstrated that there is a set of urban agricultural areas in the AMC where agricultural practices that have a high community, environmental and economic value for the local communities are practiced.

Regarding the goals, the General Goal of getting to know the urban agricultural areas of the Concepción Metropolitan Area was mainly achieved, given that it is possible to continue looking into the communes that were not focused on in this phase of the research. Regarding Specific Goal 1, it was possible to understand how these areas were formed, and their current situation vis-a-vis the urban growth processes. In the case of Boca Sur, it was understood that the origin is rural, in response to the dynamics of the population from around 1830, according to information provided by those interviewed. In the case of Cosmito, its origin is related to a research project of the University of Concepción, in the old Andalién Estate,

associated to the remains of the “Cosmito Model Farm”, created by Penco’s Sugar Refining Industry. It later evolved into a hierarchical administration system based on subleasing, generating a low degree of associativity between the market gardeners. This case has not yet been recognized by communal or metropolitan planning, and to date is threatened by the construction of an urban corridor across its land. Finally, in the case of Tomé Alto, this arose from an initiative of a Non-Governmental Organization with an educational approach, dating from the 1990’s, when the NGO Centro de Educación Tecnológica Sur (CET-Sur in Spanish), together with the international movement, Slow Food, began to run local training workshops about urban agriculture and food sovereignty in the communes of Tomé, Coelemu and Quirihue. As a result of this work, the Organic Horticulturalist Communal Union (UCHO) was set up, generating a high degree of associativity between members of the NGOs and neighbors of the sector. This link has allowed building ties with local institutions like schools, nurseries and prisons, reinforcing the educational approach of the project.

Regarding Specific Goal 2, it was possible to identify specific variables associated to the agricultural practices in these areas, all located in the AMC’s periurban areas, and it was possible to comparatively evaluate them, from the agroecological approach, obtaining a comparative vision regarding the implementation of agroecological criteria. From the three cases, the one which best fits the agroecological criteria is that of Boca Sur, in San Pedro de la Paz. This is followed by Tomé Alto, in the commune of Tomé and finally Cosmito, in the commune of Concepción.

Finally, regarding Specific Goal 3, it was possible to propose visibility strategies and valuation of the rururban territories of the AMC, where it is possible to identify agroecological practices from the territorial, social and economic dimension, visible. This implies considering actions from urban and territorial planning, from strengthening the Social and Solidarity Economy and from the promotion of associativity and action networks of the local and supralocal players for the sustainability of these practices and their contribution to the urban metropolitan system of Concepción.

The opportunity of exporting some of these reflections to other contexts, both domestic and international, arises from reaching these goals, looking to contribute to discussions in the area about the role of agricultural practices in the outlying and interstice areas produced by the prevailing urban development models. Although we are aware that Chile represents, for these purposes, a paradigm in the application of urban growth models by extension, and other metropolitan areas on the planet could present specific variables, some common traits of metropolitan growth could today be invisible to the development of this type of agriculture, on its edges, or in intermediate spaces, of different morphologies, and these spaces could be the opportunity to resolve not just problems of coverage and types of food, but also those of economic development for families and communities. Likewise, the capacity that these spaces have, to form risk and complex landscapes in terms of biodiversity, could enormously help reverse the effects of large-scale international urbanization and all its current and future complex results.

Traducido por Kevin Wright