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azazo@ubiobio.cl

Universidad del Bío Bío

Chile

Rebaï, Nasser

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THE “LIFESHED” AS A NEW SCALE OF PRODUCTION OF SUSTAINABLE URBAN-RURAL TERRITORIES. INSIGHTS FROM THE ECUADORIAN ANDES

I. INTRODUCTION

In recent decades, just like in the rest of Latin America, the liberal policies used in Ecuador have converted peri urban areas into land “reserves” for city growth or for capitalist agriculture. As a result, on one hand, the rapid progress of the urban sprawl has been seen in the Andean provinces, with the formation and consolidation of new exclusive or popular neighborhoods, particularly on the outskirts of Quito and Cuenca (Durán, Martí and Mérida, 2016; Mejía-Salazar and Páliz, 2018; Rivera-Muñoz, 2018). On the other hand, thanks to a legal framework favoring the “modernization” of the national primary sector (Rebañ and Alvarado, 2018), private companies have appropriated lands and water resources around the cities with the goal of taking advantage of the services and infrastructure (roads and airports) for their exports, as has occurred in the periphery of Quito and Latacunga (Martínez, 2015 y 2017; Martínez Godoy, 2016). Consequently, contract agriculture and the proletarianization of family-based farmers into large-scale highly contaminating flower and broccoli production farms have been generalized in these areas (Breilh, Pagliccia and Yassi, 2012), with a resulting fall in agrobiodiversity also seen.

In this context, where food and environmental concerns continuously grow in Ecuador (Arce, Sherwood, and Paredes, 2015), it seems essential to provide an insight about the peri urban areas of the Ecuadorian Andes in order to assess the extent to which these could become useful once more to provide food to the cities along with environmental services. It is worth remembering that key geographical work has indicated that the diversity of links between the countryside and the city has raised the question about the supposed border between what is urban and what is rural (Chaléard and Dubresson, 1999; Berger and Chaléard, 2017). In this same field of analysis, some works have underlined the economic efficiency of short commercialization routes (Moustier, 2017) and their usefulness both in the redefinition of the link between producers and consumers, and for the ecological transition of the territories (Lamine, 2012). In summary, the *peri urban* approach has been gradually reduced to the continuous growth of the city and the progressive absorbing of the surrounding rural space (Ávila Sánchez, 2019). However, it has become necessary to think about land organization based on a systemic relationship between the countryside and the city.

In this way, the “foodshed” notion (Getz, 1991; Kloppenburg, Hendrickson and Stevenson, 1996), with its roots in the watershed concept, would have been an interesting theoretical tool to develop this insight; however, the goal of this article is to go beyond the analysis of urban center food supply. In fact, it looks to demonstrate that, in the Ecuadorian highlands, agriculture can become a key element in land organization thanks to the multiple services it provides (food, environmental and landscape), as has been seen in different studies (Zasada, 2011; Aubry, 2013; Yacaman & Zazo, 2015). Thus, in the same way that the *desakota* concept allowed characterizing the organic link between countryside and city in Southeast Asia (Mac Gee, 1991), the “lifeshed” from the French *bassin de vie* seems more pertinent to reach the goal outlined in this research. “Lifeshed”, understood as a rural-urban territory formed by multiple interdependence links between the country and the city, is a useful expression to address development processes with a new spatial approach. This is because it makes it possible to displace the view of the metropolis towards intermediate cities (Tallet, 2012), whose demographic weight has grown in Latin America. In the case of Ecuador, the application of this category seems to be even more important, as the Andean provinces have seen relevant urban growth in recent decades, which has led to the emergence of a true “avenue of intermediate cities”³ (Ibarra, Latacunga, Ambato, Riobamba, Cuenca, Loja, among others), which together have over a 1 million inhabitants (apart from Quito, which has 3 million inhabitants). Therefore, given that the 2008 Constitution promotes producer networks to reach the “strategic” goal of national food sovereignty and contributes towards building a “Good Life” for the citizens, it seems timely to study the extent to which the redefinition of country-city ties and the emergence and/or promotion of “lifesheds” could suit the goals of new land development public policies in the Ecuadorian Andes.

From that perspective, this text collates the results of fieldwork carried out in different parts of the Ecuadorian Highlands since the end of the 2000s, looking to analyze the country-city relationships in Riobamba and Cuenca (Figure 1) and to understand how they currently favor marginalization, domination or resilience of peri urban rural areas. Finally, the most relevant elements of our case studies are returned to, insisting on the need of promoting peasant *collectives* to build country-city relations in the Ecuadorian Andes which work as the basis for the emergence of lifesheds.

II. METHODOLOGY

Qualitative studies to characterize the dynamics of peri urban rural areas in the Ecuadorian Andes

Diverse fieldwork was carried out between 2008 and 2016 which allowed putting into perspective what was seen by other authors around Quito and Latacunga (Martínez, 2015 and

2017; Martínez Godoy, 2016). 4 cases, which are considered pertinent to address the diversity of the peri urban rural areas in the Ecuadorian Andes, have been chosen for this article.

A Comparison of the country-city relations in Riobamba

In 2016, within the framework of the MAN-PEST research program ⁴, a study was carried out in the outskirts of the city of Riobamba (170,000 inhabitants), in the Province of Chimborazo. After several exploratory visits, two counties (towns) with different socioeconomic characteristics were chosen to compare the practices of local Riobambans.

1. First, fieldwork was carried out in Flores, a town located 22 kilometers to the south of Riobamba (Figure 1), where the commercial activity of the farms was limited and rural migration was very relevant.
2. The second location was in San Luis, 7 kilometers to the south of Riobamba (Figure 1). There, the commercial activity of the farms was intensive because of the sale of fruit and vegetables to Riobamba.

Looking to identify the factors that restricted or aided the articulation of the farmers with the Riobamban market, 3 leaders in Flores and 4 in San Luis, 2 local experts from the Ministry of Agriculture (MAGAP) and 2 representatives from the Municipal Public Company at Riobamba's San Pedro Agricultural Produce Market (EP-EMMPA), in charge of handling agricultural supplies of the Chimborazo Province's capital and of managing the Wholesaler Market, were interviewed. In addition, 7 farmers in Flores and 6 in San Luis were interviewed to know how they worked with the "urban world", asking them directly about whether, in their opinion, their commercial integration was supported or restricted.

B Analysis of the institutional interventions in peri urban rural Cuenca.

In the Province of Azuay, the effects of peasant migration in the different counties within the rural periphery of Cuenca (400,000 inhabitants) was studied. In this location, one of the goals was analyzing the institutional interventions to support family-based agriculture in a migratory context. The work was specially focused on two areas:

In the Octavio Cordero Palacios county, located 20 kilometers to the north of Cuenca (Figure 1), the effects of the emergence of agroecological producer networks supported by Cuenca public authorities looking to favor the commercial integration of the farms affected by migration, was analyzed between 2008 and 2010. As a result, in-depth interviews were carried out with 2 experts from the Municipality of Cuenca's Urban Agriculture Program (PAU) along with an interview with an expert from the Southern Economic Reconversion Center (CREA). These were the two institutions which supported the startup of the Cuenca agroecological networks⁵. 24 agroecological producers were also interviewed to see whether they had become members of the regional networks and how their work on their farms and their links to the Cuenca market had evolved over recent years.

3. In 2014, it was the turn of the county of San José de Saranga (Figure 1), located 40 kilometers to the south of Cuenca. Regional agroecological producer networks had not yet reached the county, and the population mainly lived off money from migration (remittances) and dairy farming. There it was interesting to analyze the actions from the public company, ETAPA-Cuenca, which was, among other things, in charge of working with the Cuenca farming communities regarding environmental protection. It was seen how the institution worked with farmers to try to slow down the advance of the livestock borders. In addition, an interview was made with an expert at ETAPA-Cuenca, to better understand the company's goals, and 11 farmers were interviewed to know how their farming activities had evolved within the local migratory context. In this way, the current importance of livestock activities could be measured, asking them about the head count per farm, the size of the grazing areas and the income related to milk sales.
4. Comments about the fieldwork and information collected. Due to the limited sample size, the studies carried out in Riobamba and Cuenca do not have the goal of acting to build new statistical databases. Nor is the goal of this article to present the economic information obtained from the family-based farmers, as this was presented in previous publications. This article has opted, however, to privilege a qualitative approach and to present the trends of the territorial dynamics in the Riobamba and Cuenca regions which were rebuilt from the in-depth interviews made with different local players. The face-off of the points of view (Bourdieu,

³ This expression refers to the "Volcano Avenue" in the Ecuadorian Andes which comprises one of the most important scientific and touristic attractions in Ecuador.

⁴ Research program led by the French Research Institute for Development (IRD) with funds from the French National Research Agency (ANR) (<http://www.equateur.ird.fr/activites/projets-de-recherche/agriculture/anr-man-pest-insectes-ravageurs-et-securite-alimentaire>).

1993) of the farmers and leaders with the institutional players allowed understanding how the country-city relations in Riobamba and Cuenca have evolved over the last few decades and how, in the end, these evolutions affected the land in the counties of Flores, San Luis, Octavio Cordero Palacios and San José de Raranga. By comparing these 4 case studies, it was possible to demonstrate singular processes in order to be convinced about the need of rethinking the spatial framework of public land development policies in the Ecuadorian Highlands and of promoting the emergence of lifesheds in that region.

III. RESULTS: DIVERSITY OF THE PERI URBAN RURAL TERRITORIES: TYPOLOGY PROPOSAL FROM THE ECUADORIAN ANDES.

The following section will present the extent to which the country-city relationships constitute a key factor to differentiate the peri urban rural territories in Riobamba and Cuenca.

A Flores, a “marginalized” peri urban rural territory.

While forty years ago, the Riobamban countryside was one of the main granaries of the Ecuadorian Highlands, at the end of the 1980s, the opening up of Ecuador to cereal imports and the renewal of the Chambo-Guano irrigation system transformed the rural periphery of Riobamba into a vegetable ‘shed’ of almost 6,000 hectares in size (Rebaí, 2018). However, this process did not include the county of Flores. As a result, apart from enduring an unfavorable economic context for barley, wheat and maize production, the Flores leaders and farmers, who were interviewed, systematically outlined that the absence of irrigation water, along with the lack of institutional support, have historically been the two main problems at a local level. They indicated that the public entities had done nothing to help local farmers access water, which would have allowed increasing local production and favored developing commercial crops for Riobamba. On the other hand, the leaders said that the public entities had not done anything to set up a stockpiling center which would have helped sell local corn, in spite of this being a longstanding demand of Flores’ townfolk.

In this scenario, the leaders explained that the migration of Flores’ inhabitants, mainly to Guayaquil (Ecuador’s second largest city and largest economic hub) had become

generalized, just like countless Chimborazen locals during the 1970s and 1980s (Lentz, 1984; Preston, 1988). For this reason, both the farmers and leaders pointed out that due to youth migration, it was very difficult to maintain a productive dynamic and that, as a result, cropland in the town had fallen in recent decades (Figure 2). So, today in Flores, farming represents a limited source of income for rural homes, who depend greatly on the economic support of their family members that emigrated to buy cereals, as it is no longer possible to produce enough to cover all their basic food needs.

To sum up, it is worth highlighting that the critical socioeconomic and farming situation in Flores is a result of the lack of institutional support which would have allowed establishing country-city links, favoring the commercial integration of the family-based farmers. Likewise, the ongoing emigration of the youth and the aging of the population appear as two symbols of the downturn of the agriculture here, where, in recent years, land bought by urbanite citizens looking for homes near Riobamba has multiplied. Consequently, on forming a territory that is historically marginalized by public policy and on belonging, for decades now, to a “subspace of the passive periphery [of the national territory]” (Deler, 2007: 375), Flores has become a reserve of buildable land which indicates the presence of a capitalist means of land appropriation, one which is capable of making rural family-based agriculture disappear faster still in this Riobamban rural peri urban territory.

B San Luis, a “dominated” peri urban rural area.

If during the 1970s and 1980s, San Luis’ farmers sold limited amounts of corn and cabbage, currently, dozens of pickups take fruit and vegetables into Riobamba’s Wholesale Market on a daily basis. In fact, San Luis has been one of the Riobamban rural peri urban towns which has seen important changes due to the renewal of the Chambo-Guano irrigation system and, for this reason, this area is today characterized by the presence of thousands of vegetable lots and tomato greenhouses (Figure 3). Along with the change in landscape, the development of intensive agriculture has led to an increase in agricultural employment. As a result, vegetable and fruit production in 2016 comprised the primary source of income for the 6 families we studied in San Luis (Rebaí, 2018). However, this does not mean that this area has an acceptable environmental and socioeconomic position.

The farmers interviewed in San Luis explained that they often bought chemical supplies thanks to the resources they obtained by selling their produce in Riobamba. On asking why they had not stopped using chemicals, they answered

⁵ It is worth highlighting, however, that CREA disappeared at the beginning of the 2010s and that the producer association behind it, started to receive support from MAGAP.

that “there [was] no interest”, because the intermediaries taking the produce to Guayaquil, Portoviejo or Manta did not support agroecological production and preferred “well balanced” and “flawless” produce. Likewise, although San Luis’ farmers admitted that using chemicals on their farms was often exaggerated and thus, costly and harmful for the environment, their health and the consumer’s, they did not want to risk stopping to use pesticides on their fields because they feared not being able to sell their produce. When asking EP-EMMPA’s representatives, they ignored the matter of the intermediary influence on stating that they were worried about the country folk accessing the market and “obtaining income quickly”. In this sense, the reduction of chemical product use or the valuing of agroecological production was not a priority because free-access for the farmers to Riobamba’s market already constituted a public development policy of the Riobamban peri urban rural areas.

Although San Luis’ farmers said they were satisfied on being able to sell their produce without problems in the Wholesale Market, they considered that their economic situation was unfair because the intermediaries fixed low prices which prevented them from earning a higher income. However, they did not seem ready to set up a collective dynamic to change this situation, be this due to the fear of wasting time or because they simply did not know how. Thus, beyond having favored costly and contaminating farming practices, the lack of public action led to the fact that Riobamban farmers would not have been benefitted by interventions that would have allowed them to reinforce their organizational and collective action capacities to free themselves from the influence of intermediaries that have kept them, for years, in a precarious economic and food-based situation (Rebaï, 2018). It must be added that the same lack of public action did not allow the emergence of more ecological food systems in Riobamba. As a result, San Luis, just like on the outskirts of Quito marked by the agroindustrial development, corresponds to a peri urban rural area dominated by capitalist interests (Harvey, 2001) which enters into direct contradiction with the welfare of the urban and rural populations, and with the obligation of safeguarding the environment (O’Conner, 1988).

C Two resilient peri urban rural areas in the Province of Azuay.

The rural migration that has been taking place since the 1960’s in the rural periphery of Cuenca, has caused relevant agrarian changes. As a result of the lack of labor on the farms, and due to a national dairy market protection system in place since the start of the 2000s (Barragán Ochoa, 2017), a drop in crops and forestry areas has been seen in favor of grasslands. Therefore, beyond the loss of agro-biodiversity, the increase of cattle farming has led to relevant environmental degradation. Given this situation, the regional political powers have implemented different projects during the 2000s to put the brakes on rural

emigration, favoring Cuenca’s foodshed and promoting the sustainable development of Cuenca’s rural peri urban land.

First of all, as it has been mentioned, two regional agroecological producer associations were created to foster agricultural employment and support the Cuenca foodshed: PAU and CREA. These focused on guiding locals towards agroecology, using workshops that allowed disseminating new practices in the Cuencan rural peri urban area. The strategy had the goal of also answering the demands of countless farmers who, since the 1990’s, in a very broad framework of indigenous and rural mobilizations in the Ecuadorian Highlands (Giunta, 2014), actively sought to gain the right to sell their produce in Cuenca’s markets instead of relying on remittances, that were often erratic in nature. Thus, an important change in the Cuencan region’s country-city relations took place and, at the beginning of the 2010s, around 300 producers had direct access to the urban markets where they sold a wide range of fruits, pulses and dairy products (Figure 4).

In the Octavio Cordero Palacio county, this commercial integration policy encouraged farmers to form groups of seven or eight individuals to work collectively on their lots, to share experience or knowledge about agroecological processes and to save time so they could focus on their animals and in the manufacturing of cheese, which guaranteed them relevant incomes. In addition, these solidarity-based relationships led them to not hire day laborers and therefore, not increase their production costs, allowing them to set low prices which they took “downtown”, as they called Cuenca, as if their area were a neighborhood of the heart of the city. It is worth underlining that these collective practices certainly involve the transportation of the products to the urban market. In fact, the mutualization of the transportation costs by collectively leasing pick-ups allows the farmers to send relevant amounts of fresh healthy produce to Cuenca. While the individual dispatch cost for each producer is no more than 2 or 3 dollars a week, their sales of fruit, vegetables, cheese, milk or eggs guarantees them several hundred dollars a month. As such, often their incomes in the Cuencan markets exceed both the remittances and the legal minimum wage (240 dollars a month this year). Finally, thanks to setting up farm supply networks from the peri urban rural towns, certain products consumed on a daily basis, which are sold by local farmers, can end up being 75% cheaper than those sold by the intermediaries also present in the Cuencan markets (Rebaï, 2012). This has allowed, as it has been shown, that the Cuencan popular classes access good quality food products and, at the same time, that the farmers generate income and start a capitalization process.

Beyond the emergence of producer associations, another institutional intervention was relevant in mobilizing the peasants and protecting the environment within the new

framework of country-city relations in Cuenca. Deforestation, in several locations, had led to accelerated soil erosion. In the paramos ⁶, the growing penetration of cattle herds had begun to affect the capacity of the ground to retain the rainwater which helps agriculture and is used domestically in the homes of the Cuencan rural peri urban area, as well as for Cuenca's drinking water. For this reason, ETAPA-Cuenca, in order to resolve an environmental problem at a regional scale, has implemented since the start of the century, the Integrated Watershed Management Plan for Water Protection (MICPA). This has had different modalities, like buying land, protecting strategic water capture areas, or setting up Mutual Water Agreements (AMA) with farmers, which has been behind creating commitments for the conservation or restoration of forests on higher ground. In San José de Raraga, the public authority set in motion collaborations with farming groups, technically supporting them to maintain a dense vegetation on higher ground or to guide them towards agroforestry with the purpose of focusing production and sales on fruit and wood, instead of maintaining dairy farming which no longer provided enough income for rural homes to cover all their domestic expenses (Rebaí, 2015). ETAPA-Cuenca multiplied their efforts with the same farm groups looking to guide farmers towards adopting "best practices", teaching them, for example, about the need of keeping cattle away from the gorges and small rivers to avoid that their dung contaminated regional water resources (Fig. 5). To sum up, in spite of the migratory context, new means of collaboration among rural people were set up in San José de Raraga who, with the support of ETAPA-Cuenca, built collective wells (Fig. 6) and set aside grazing areas so that their cattle would not affect the natural resources of Cuenca and its rural surroundings.

Through the creation of agroecological producer associations and technical support to farming groups to manage higher ground, the public institutions in Cuenca have managed to address the migration issue, favoring a redefinition of the country-city relations, creating, at the same time, the conditions for the resilience of peri urban rural areas.

IV. DISCUSSIONS

Upon comparing the processes seen in Riobamba and Cuenca, interesting insights can be provided to consider, in the future, the construction of sustainable urban-rural areas in the Ecuadorian Highlands. While marginalized areas were seen in Riobamba, both spatially and socioeconomically speaking or subordinate to capitalist interests, in Cuenca, on the other hand, and in a context of family-based agriculture affected by previous migration, the resilience of the peri

urban rural areas could be seen, having been driven by public institutions instilling new rural practices, which, at the same time, produced a redefinition of the country-city relationships. It is worth stating that the promotion of farming collectives, understood as a generic notion which refers to a group of individuals who cooperate through common action to defend, organize or value their land (Raimbert y Rebaí, 2017), constituted a key factor to favor new socioeconomic approaches between farmers, on one hand, and between farmers and urban consumers, on the other. On promoting the training of farmer groups, with the idea of providing environmental services and agroecological producer associations, for the provincial urban supply of clean cheaper products, the Cuencan public authorities favor new socioeconomic approaches, which correspond to the fact that players belong to the same networks, share the same references and the same knowledge, and are organized based on common goals (Torre and Beuret, 2012), making the creation of new solidarities between Cuenca and its rural periphery possible.

To sum up, promoting farming collectives should be considered as the first step towards favoring the production of sustainable urban-rural territories. In fact, the increase of the peri urban farmers' capabilities would contribute towards building new country-city relationships through less contaminating local food systems, which would allow valuing the agricultural heritage and local foodstuffs (Girard, 2017). By accessing the market, the family-based farmers could drive the mutation of their territories favoring the progressive establishment of artisanal units or micro-industries for transformation, adding value to the products (Hespanhol, 2013). In other words, on fostering the construction of farming collectives, which also could have a positive influence on the environment (Ostrom, 1990), the public powers would support the multifunctionality of peri urban rural territories where the valuing of biodiversity and the landscape could lead to the develop of agrotourism, attracting urban populations.

V. CONCLUSION

The comparative analysis carried out in this text has allowed underlining the need for rebuilding, in the Ecuadorian Andes, the bond between the countryside and the city, between farmers and urban populations, with the goal of promoting sustainable urban-rural territories. This goal seems even more urgent as the family-based agriculture and the peri urban rural lands of the Ecuadorian Highlands are highly vulnerable (Rebaí y Alvarado, 2018) when facing global changes. For this reason, it is worth insisting that, to make

⁶ The paramos form a typical ecosystem of the Septentrional Andes (Ecuador, Colombia, Venezuela), located at more than 3,200 m.a.s.l., whose vegetation mainly comprises bushes and grass.

the political will of change of the development model that arose over recent years in Ecuador real, the priority would be promoting the strengthening of farming collectives, as foreseen in the 2008 Constitution, so that lifesheds emerge. This notion, which has been shown through this article, could be considered as an interesting theoretical option for the purpose of resolving the issue of food supply and of the eco-territorial transition in the Ecuadorian Highlands. In future research, this notion could be strengthened, studying other areas of Latin America, where the advance of the urban sprawl suggests new spatial development setups, looking to focus public policy on favoring the socioeconomical approach