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# Ecological transitions within agri-food systems: a Franco-Brazilian comparison<sup>1</sup>

C. Lamine<sup>2</sup>, G. Maréchal<sup>3</sup>, M. Darolt<sup>4</sup>

## 1. Introduction

In the last twenty years many initiatives, programs and policies for food security and short food chains have been developed in France and in Brazil (LAMINE et al., 2012). They have followed significantly different paths as Brazil has developed integrated policies linking food, environment and poverty (in a context of a high level of rural poverty) while in France alternative food networks have been mainly initiated by a strong civil society movement.

In this paper, we use a transitions approach, that consists of analyzing the emergence and evolution over time of past and current initiatives emerging from the public and private sectors, as well as in the civil society, aimed at developing environment-friendly practices (in agriculture, food industries, trade and consumption), and we apply it to compare four French and Brazilian case studies.

## 2. A systemic and pragmatic approach to territorial agri-food systems

Our transitions approach is based on a combination of several theoretical approaches (LAMINE et al., 2015) that tackle the transformation processes of agrifood systems.

The theory of food regimes has concentrated on the negative trends in global food relations and their effects on poor farmers (Friedmann and McMichael 1989), as well as on the adaptation of the global food system to the growing criticisms it has had to confront, as is exemplified by the emergence of a "corporate environmental food regime" (Campbell 2005). The development of alternative food networks, grassroots innovations and re-peasantisation processes has led to more optimistic analyses regarding current and possible future transition pathways, such as those focusing on the new paradigm of "sustainable" rural development which stresses civil society's crucial role in changing the food system (PLOEG et al., 2000).

The "sustainable transitions" approach focuses on "niches", whose development leads the dominant "regime" to possible "transition pathways" (GEELS, SCHOT, 2007). Within the "Localized Food Systems" (SYAL) approach which has been forged in the French context, transition processes have also been described as tensions between an agro-industrial world with homogenizing standards, and the references both to tradition and to local territories.

In Brazil, researchers mostly describe a dual situation where a so-called "agribusiness" model is opposed to the "family farming" model (LEÃO, 2013) and analyse the role of social movements

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1 This paper is an adaptation of a more detailed article in portuguese "Análise da transição ecológica de sistemas agrifood territoriais: Ensinamentos de uma comparação franco-brasileira », written by the same authors, to be published as a book chapter in Brazil.

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(mainly farmers' organization) opposed to intensification and industrial agriculture in the development of ecological farms networks and short food chains<sup>5</sup> (BRANDENBURG, 2002; DAROLT, 2012), and since 2000 of public policies devoted to family farming (GRISA et al., 2011). In this contrasted landscape, France and Brazil share a growing interest in territorial approaches to agrifood systems, considered in this paper as involving all actors of production, transformation, distribution, and consumption of food in a given territory. Our approach to these territorial agrifood systems' transitions is both systemic, because it focuses on the interdependencies between the different components of the agrifood system and on their transformation over time, and pragmatist because it considers agrifood systems as systems of actors and institutions that have different visions and aims guiding their action.

We investigate two hypotheses based on our comparison of four French and Brazilian cases. First, that the transformation of a territorial agri-food system is the result of the combination of diverse visions, initiatives and actions, even through conflicts and controversies. Second, that a coordination of public, private and civil society action through appropriate governance is necessary to achieve transitions that are not only sustainable but also socially just.

### **3. Application to French and Brazilian cases**

The four cases refer to two rural experiences in the southeast of France (Ardèche and Biovallée) and two urban cases (Metropolitan Region of Rennes in France and Metropolitan Region of Curitiba in Brazil).

#### ***3.1 Two rural areas in southern France (Southern Ardèche and Drôme river valley - Biovallée)***

These two rural territories are located in the Auvergne-Rhône-Alpes region in France. Both are rural spaces in mutation with a demographic regrowth after 150 years of decrease and a lush natural environment. Agricultural production shares the following characteristics : a relatively high diversity (vineyard, fruits, extensive cattle raising, arable crops etc.), and a high percentage of organic agriculture. Both host a profusion of civil society initiatives some of which originated in the 1970s, when "back to land" project holders arrived in Ardèche and the Drôme Valley and launched initiatives on agriculture and food. CSAs (known as AMAP) and more recent initiatives (such as collective producers' shops) emerged later, while traditional producers' markets kept growing. Even "conventional" players, such as agricultural cooperatives, began to invest in organic production in the two territories. In the Drôme Valley, four agricultural cooperatives have developed organic agriculture since the early 1990s, increased their offer of organic products, and supported the

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5 Short Food Chains (SFC) are defined as "a system of interrelations between actors that are directly engaged in the production, processing, distribution and consumption of food" (Renting et al., 2012). This definition brings up two important points (interrelationships and interdependence) and leaves open a wide range of forms of articulation between production and consumption.

transition of other farmers to organic practises<sup>6</sup> (BUI, 2015). In southern Ardèche, local fruit cooperatives – facing a sharp decrease in sales - have also launched diversification strategies since the 1990s, based on organic fruit and vegetables. However, producers often face the usual drawbacks of long circuits, such as standardized quality criteria, price volatility and high volumes requirements (LAMINE, 2012), and the complexity of patterns involving many intermediaries. Despite the fact that a collective brand "Taste Ardèche" was launched in 1994 by the three Chambers of agriculture, handicrafts and trade, the governance of the territorial agrifood system only started to be structured in late 2016.

In contrast, in the Biovallée, local authorities launched in 2009 a pioneering program of energy, waste management, housing and agriculture, including ambitious goals for organic agriculture and food procurement.

In both cases, a large range of initiatives create a hybridization process that leads to a reterritorialization of the food chains, that often combine at the farm scale specialized productions (with exports of the surplus) and diversified ones, through appropriate collective modes of coordination. Thus, despite agricultural crises such as that of the fruit industry, these two territorial agrifood systems seem to present a higher "resilience" than other more specialized ones. Finally, in both cases, the issue of social justice has been tackled through a combination of civil society and public action, with an important role of school procurement and of educational programs and devoted actions for low-income families.

### 3.2 The case of the Rennes Metropolitan Region

Rennes is located in Brittany, in western France. Until World War II, it was a classic example of the integration between the city and the countryside, through a territorial production system that provided the city with milk, butter, poultry, apple (for cider<sup>7</sup>) and firewood for heating. This system got destabilized during the "modernization phase" in the 1950s and 1960s, and at the same time, a new urban way of life changed the patterns for energy resources (oil instead of firewood), diets (regression of cider and butter) while providing new job opportunities<sup>8</sup>.

In the 1990s, the Rennes region had already adopted the "Breton model" based on specialization in a single product, in this case milk. However, the previous rural-urban interactions were partly preserved by urban planning, as public authorities decided to keep agricultural and green areas on

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6 The Council of the cereal cooperative has gradually included more and more organic farmers in its management, elected by their colleagues including conventional farmers, showing a process of gradual acculturation and a growing recognition of organic in the agricultural world.

7 Drink obtained by the alcoholic fermentation of apple juice. The Ecomuseum of Rennes depicts the history of a neighboring farm of Rennes with an integrated production for the local market, estimating an individual consumption of more than 300 liters of cider per year in the early 20th century.

8 The development of the automotive industry favored the integration of the lowly politicized "children of farmers", who often had 2 jobs, one as a factory worker and the other as a farmer.

separate peripheral neighborhoods (principle of the "archipelago city") and also maintained a large traditional market, the "marché des Lices".

Moreover, a dozen alternative farmers gathered in 1992 to open a cooperative shop called "Brin d'Herbe", motivated by the preservation of "human size" farms and the support to the settling of young farmers. A second and a third shops (the latter by another group) were opened in 1998 and 2001. Together, they now have an annual turnover of around 4 million Euros.

With the explosion of the CSAs (AMAP) in the early 2000s, urban populations "rediscovered" agriculture and food. Militant networks started to urge local authorities to "do things". The then first vice-president of Rennes Métropole, in charge of agricultural issues, proposed an economic diagnosis. In 2007 it assessed the turnover and the number of jobs generated by the short circuits of commercialization in the metropolis (DENECHÈRE et al., 2008), raising a unanimous interest.

In 2008 a "local farming plan" was set up and agroecological practices become the nexus of local public policies. Academics, in particular Agrocampus Ouest, contributed from the beginning to this dynamic, and the project "Rennes ville vivrière"<sup>9</sup> (DARROT, 2014) published two scenarios for the food system, and showed that a high level of autonomy could be reached.

The example of Rennes illustrates a multi-dimensional articulation of initiatives and actors, with the participation of farmers, consumers, academics and public authorities. It also shows the utility of a strategy based on an "extensive growth" multiplying the units (such as farms and alternative food networks) rather than simply expanding existing ones.

### 3.3 Metropolitan Region of Curitiba

The Metropolitan Region of Curitiba (MRC) was created by a Federal Law in 1973 to improve management and integrate municipalities. In 2015, it gathered 29 municipalities of Parana State (South of Brazil), which is among the richest in Brazil.

In 1950, the rural population represented more than 50% of the total population of the MRC. Since the 1970s, there has been an inversion, with around 85% of the population now living in urban areas and 15% in rural areas (IBGE, 2015). However, in the green belt of Curitiba, many small farms still produce fruits and vegetables mainly for local markets.

Family farming represents about 78% of rural establishments and 68% of the land surface in the MRC. Since 2000, environmental protection policies and new agroecological production initiatives have been implemented (DAROLT, 2012). The MRC concentrates around 47% of the number of organic producers (1700) of the whole state of Paraná (MAPA, 2016).

Over the last 20 years, there has been a significant increase in the diversity of food policies and initiatives in the MRC, with emphasis on short food chains. This in a larger context where, since the early 1980s, Brazilian family farmers have developed alternative production and marketing

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9 Rennes food producing city

systems and progressively built networks, with support from civil society organizations, in order to link producers and consumers based on principles of trust and equity (BRANDENBURG, 2002). As an example, the number of organic markets grew by 250% between 2006 and 2016 (Santos and Darolt, 2016).

In this case study, the analysis of the transition to more sustainable systems points to a combination of factors, such as : the institutionalization of organic production (Law 10.831 / 2003); National and State public policies for family farming, agroecology and food sovereignty (Paraná Agroecológico), processing (Farmer's Factory program) and commercialization; school procurement programs; agroecological training (Ecovida Network, and a public agroecological support center); participatory certification processes; technical assistance and rural extension (through State institutions); research and training networks; new premises for short food chains (fairs, stores, CSAs, restaurants, and a permanent Organic Market founded in 2009 in Curitiba), and integration with long chains (supermarkets). The development of non-agricultural activities such as rural tourism and discovery ("walks in nature" program) has also contributed.

These transition processes were made possible by political changes and by the involvement of civil society organizations in the implementation of local public policies. However, outside ecological and family farmers organizations, civil society actors (and especially consumers' organizations) are less involved than in the French cases (DAROLT, 2012).

The case of Curitiba shows, as in the previous cases, the effect of a diversity of initiatives originating from networks of ecological and family farmers, associated with a good articulation between the different components and actors of the agri-food system (production, technical extension, public policies, food industry and marketing or consumers initiatives). In contrast to the French cases, public policies here play a larger role (especially institutional purchases for school and family farm policies), while the mobilization of civil society remains weaker.

#### **4. Lessons learned from the cases**

In the four cases, the initiatives originate from a whole range of agrifood systems' actors: alternative agriculture networks, more conventional actors (cooperatives or processors), civil society, and public authorities. Ecological transition processes are most effective when all the links in the chain are involved (producers, processors, technical assistance, local public policies and organized civil society), and when appropriate governance instruments ensure good coordination (Table 2).

Characteristics	Ardèche	Biovallée	Rennes	RM Curitiba
Involvement of various links of the chain	XXX	XXX	XXX	XX
Multi-actors shared governance	X	XXX	XX	XX
Role of the public policies	X	XXX	XX	XXX
Role of the civil society	XXX	XXX	XXX	X

Table 2 – comparison between agri-food systems in the 4 cases

Note: level of performance (x = low, xx = medium, xxx = high)

The balance between the roles of public policies and of civil society deeply differs. In the French cases, alternative agriculture networks and the civil society highly contributed to the soaring of short food chains and to the reterritorialization process. In Brazil, the impact of public policies has been decisive in the last 15 years. From 2000 onwards, family agriculture and agroecology have been supported by government programs. The implementation of laws for the acquisition of food from ecological family farms for public schools and for poor families (National School Feeding Program - PNAE and Food Acquisition Program - PAA) have strongly contributed to these ecological transition processes.

The predominant roles of civil society in France and of the public sector in Brazil have created differentiated dynamics. In Brazil, ten years of public interventions with significant budgets (over a billion euros a year, combining credit and institutional purchases) have reinforced the links between family agriculture, food, health and social policies with a focus on agroecology. An inter-sectoral governance has been implemented between the different ministries and departments involved (agriculture, social development, food, health, education and environment). In France, no significant budget had been implemented to articulate agricultural, environmental, food, health and social policies at the national level until recently, and these policies are still deeply disconnected.

However, both in Brazil and France, dynamics that rely mainly on national governments or local authorities are threatened by the risk of political discontinuity. In Brazil, with the weakening of public food procurement programs since 2016, many farmers whose economic sustainability depended on public intervention have gone bankrupt.

## 5. Conclusion

Our systemic and pragmatic approach proves useful to understand the evolution of food systems at the territorial scale and on the long run (2 to 3 decades). Both the academia and the social/public sector can benefit from this approach. The case of public procurement clearly

illustrates the need of a systemic view. Public intervention in Brazil was based on a systemic vision, with a strong relation between food problems (fight against hunger), public health, economic viability of family agriculture, territorial balance and the promotion of agroecology. However, this systemic view neglected the complexity of farmers' economic viability, insofar as public policies focused on a single commercialization channel which is dependent on political stability (public procurement).

In France, public food procurement also became central to public action, but with weaker results than expected, due to a lack of systemic vision within and between public policies. However, the French case shows the benefits of diverse marketing channels (public procurement, markets, stores, AMAP, on farm sale, etc.), which interact both economically and organizationally, but also allow a wider process of legitimation of ecological agriculture within the local population

Finally, our analysis raises some important issues for future research. The first one has to do with social justice and "just sustainability". Our hypothesis is that alliances of active social movements and strong public policies are necessary to guarantee social and territorial equity for both farmers and consumers in terms of access to ecological practices, alternative markets and environmentally friendly products.

The second issue to be considered relates to the ecological dimensions of territorial agri-food systems in their diversity (environmental impact, landscape quality, water and soil management, among others), which we have not addressed here, and would require the involvement of natural scientists and the co-operation with local actors.

The third and last question deals with our research postures, in which we seek to adopt both an analytical stance and a transforming posture. The articulation of these two postures requires a long-term commitment to the cases studied.

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