

Article

Territorial Governance. A Comparative Research of Local Agro-Food Systems in Mexico

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Abstract: The article attempts to provide a theoretical discussion on territorial governance by presenting both the neo-institutionalist position and the De Sousa Santos' alternative models, with a view of highlighting the dimensions that can be relevant to understanding the territorial dynamics of Local Agro-food Systems (LAFS). The paper aims to build up a system of indicators, structured in four dimensions, concerning the territorial governance of LAFS: (i) multi-level coordination; (ii) democratic participation and accountability; (iii) cooperation among producers and other stakeholders and (iv) relationships with the environment. We verify, as a hypothesis, that the typology of markets to which the identity-based products are directed plays a decisive role in the way that processes of territorial governance of LAFS are constructed. The results of an empirical research, developed in four LAFS in Mexico, are presented: prickly pear cactus in Morelos, blackberry in Michoacán, cuitlacoche (corn smut) in Tlaxcala and coffee in Veracruz. Two types of territorial governance of LAFS may be distinguished: those that can be strengthened by the geographical and organisational proximity of the markets and the action of local stakeholders and governments—prickly pear cactus and cuitlacoche—versus those which are devoted to export and are conducted by large companies in which marketing networks involve certification mechanisms and a large number of institutions—coffee and blackberry.

Keywords: territorial governance; Local Agro-food Systems (LAFS); Mexico; multi-level coordination; accountability; cooperation; environment

1. Introduction

Local Agro-Food Systems (LAFS; French acronym SYAL, *Systèmes Agro-alimentaires Localisés*) constitute a field of study that has been widely disseminated in recent years among academics, social actors and territorial development stakeholders [1–3]. According to Sanz-Cañada and Muchnik [4], LAFS are conceptualised as concentrations of locally networked farms, firms (agro-food industries, marketing companies, auxiliary industries and service enterprises, etc.) and institutions (sectoral institutions, local development agencies, etc.), specialised in producing and marketing identity-based food products. LAFS perform collective regulatory tasks, such as identification of the specific quality, adoption and dissemination of techniques, knowledge and know how.

One of the main approaches in studies on LAFS involves the analysis of the effects of the *proximity* of the farms, firms and institutions specialised in an identity-based food sector, upon the development of networks among local stakeholders, concerning different aspects, such as knowledge, trust or supplier-consumer relationships, among others [4]. Research attempts to establish whether and how local stakeholders can valorise the food identity and the territorial specificity by means not only of

geographical, but also of organisational, proximity [5–8]. Whereas geographical proximity involves the distance between the agents, organisational proximity, according to Torre and Gilly [9], is based on two types of logic: belonging and similarity. The former implies that actors who are close in organisational terms belong to the same space of proximity relations and interactions (firms, networks . . .), whereas the latter means that the agents have the same reference space and share the same knowledge. Research conducted in terms of proximity enables us to analyse territorial governance mechanisms, such as the types of relationships between local stakeholders and institutions, whether these involve cooperation and/or conflict, or the existence of common cultural elements. As governance is conceptualised as a form of government involved in the political decision-making process for multiple independent private and public stakeholders, who are coordinated in a non-hierarchical manner and who present multiple interactions and mutual agreements, good local governance thus constitutes a basic requirement for valorising territorial specific resources. The forms of horizontal and vertical coordination arising between local stakeholders and institutions, as well as the synergies resulting from their respective collective actions, are the consequence of geographical and organisational proximity.

Within this perspective, the concept of *territorial governance* arises from the incorporation of an approach based upon the concept of proximity into research on the relationships coming about in the LAFS; it is inscribed within the scope of studies that consider territory as a place of construction of collective projects and articulation of the relationships between global and local aspects [10]. In a predominant context of globalised mass food markets, where there exists asymmetry in relation to information and numerous decision makers, the concept of territorial governance implies, from the decision-making perspective, at least four fundamental elements.

First, it should be pointed out that, according to Torre and Traversac [11], territorial governance consists of applying processes of networked collective organisation in which multi-level management takes place among stakeholders, enterprises and local institutions; multi-level coordination, inherent to the scale of territorial work, represents a necessary condition for attaining territorial governance. Within the scope of this type of coordination relationship, there is a need to highlight the central role taken on by the local networks that disseminate knowledge and information.

Second, the new approaches in territorial development place particular emphasis on incorporating an intrinsic vision into the concept of governance, by which the local stakeholders and institutions are requested to modify their actions and decision-taking frameworks, changing from pyramidal and centralised government organisations to networked systems in which decisions are taken in a more decentralised manner and into which public-private partnerships are incorporated [8]. Within these new frameworks, participatory democracy and accountability are features that define the decentralisation of the decision-taking process.

A third element, inherent to the concept of territorial governance, involves horizontal relationships of cooperation (or conflict) among producers and other socio-territorial agents, such as consumers, which are based upon organisational proximity—empowerment of the stakeholders, a common territorial identity and values of mutual trust and specific local agreements, among other aspects; all these elements contribute to generating territorialised social capital.

A fourth aspect of the concept of territorial governance refers to the relationships between the LAFS and the environment, because multifunctional approaches on agro-food systems must necessarily converge in the analysis of environmental issues and in the management of common assets involving natural resources.

Some studies have addressed governance and its corresponding construction of indicators in an exhaustive manner. The World Bank possesses a large database on global governance [12], which groups data into six dimensions: voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. The shortcoming of these indicators is that they are not pertinent with regard to addressing the specific dynamics of the territories and their socioeconomic relationships. Moreover, they exclude the environmental dimension, as well as the dynamics of urban-rural land use.

Otherwise, few studies deal with the problem of indicators in the research on territorial governance. One of these is that of Correa-Gómez et al. [13], which is a seminal study in comparative research into LAFS; in this article, the authors attempt to build common indicators in order to find these types of systems in Colombia. Another one is that of Janin Rivolin [14], who proposes institutionally positioning indicators of territorial governance in the EU regional policy.

A first objective of the present paper involves making progress in research on the territorial governance of LAFS, an aspect poorly addressed in the literature: LAFS is thus our unit of empirical analysis. A second objective of our research is to build up a system of indicators devoted to characterising the willingness of LAFS, to develop collective action, useful to local stakeholders' strategies and for the design of local and regional policies. Our methodological approach is defined by the building of a system of indicators with the four dimensions of territorial governance of LAFS mentioned above.

In accordance with the elements outlined as being constitutive of the concept of territorial governance, our research hypothesis is whether the typology of markets to which the identity-based products are directed plays a decisive role in the way the processes of territorial governance of LAFS are constructed—that is, we analyse what features territorial governance acquires from these systems when the export markets are dominated by big companies, or rather, when proximity markets prevail. Strategies aimed at highlighting the value of products can be seen in different models of territorial organisation, a fact that involves, among other things, different forms of coordination of the actors [15] or different forms of organisational learning [16].

To this end, our article presents the results of the research, which is based on diagnosis and analysis of four LAFS, emphasising the empowerment of local actors and their influence on the territorial dynamics of local communities in central, Eastern and Western Mexico: prickly pear cactus (*Opuntia ficus*; *Nopal* in Spanish) production in Tlalnepantla, Morelos; blackberry production in Valle de Los Reyes, Michoacán; *Cuitlacoche* (*Ustilago maydis* sp.); corn smut which grows on young corn cobs) produced in greenhouses in San Miguel Xochitecatitla, municipality of Nativitas, Tlaxcala; and coffee production in Ixhuatlán del Café, Veracruz.

The present paper is divided into six sections. The second section addresses the current debate on territorial governance and its theoretical background, as well as the particularities thereof in LAFS. The third section describes the materials and methods employed in the development of territorial governance indicators. In the fourth section, the main characteristics of the case studies are set forth. Results of the empirical research are presented in the fifth section. Finally, the results are discussed, in the light of theoretical proposals and of the research agenda, in the conclusions section.

2. Theoretical Framework: Conceptual Debate and Dimensions of Territorial Governance

The term *governance* is used in different ways, but it is always considered as a new form of public stewardship and collective resource management that goes beyond the usual and hierarchical form of public government—it emphasises decentralised processes of decision-making, involving participation of the public institutions, the economic fabric and the civil society, as well as coordination among the actors [17,18]. Regardless of the genealogy of the concept [19,20], this section aims to highlight some socio-economic and territorial characteristics of governance. To this end, we underline the differences and similarities between two apparently opposing positions—on the one hand, the New Institutionalism of Williamson [21,22] and, on the other, alternative positions, like that of De Sousa Santos [23,24], who, based on the meaning of local and on the ecology of knowledge from the global South, seeks to construct an anti-capitalist epistemology. Both positions seem partially irreconcilable—while neo-institutionalist positions draw attention to the cost of agreements and contracts for the enterprise, the alternative ones emphasise conflict as key to the distribution of knowledge and power, and also acknowledge diversity in the global world. Nevertheless, both positions coincide in a number of ways and share some dimensions that can be applied to the field of territorial governance.

New Institutional Economics seeks to reduce the transaction costs of contracts and agreements [21] and therefore studies governance by identifying, explaining and mitigating the risks arising from these contracts. Williamson [22] (pp. 54–61) provides a detailed review of these costs by emphasising the role of behaviours and expectations, property rights, technology, the different forms of business integration and the impacts of public policies, especially anti-monopoly regulations. However, one of the biggest challenges of this discipline involves measuring transaction costs and the impacts of hierarchy and bureaucracy on the formal structure of companies and the well-being of agents.

For critical authors, dissemination of the concept of governance responds to the need for a neo-liberal matrix that seeks to give new legitimacy to 21st century capitalism. As pointed out by De Sousa Santos [23] (p. 33), the concept of governance has curiously become widespread, together with that of globalisation, raising the question of whether it could represent an epistemological subordination of colonial societies and local forms of production to global capitalism. According to the same view, the origin of governance, or rather of the need for government of global capitalism, can be found in the crisis triggered by the student movements of the seventies and the subsequent questioning of the legitimacy of capitalism. The anti-globalisation social movements, as well as the local movements—with a global impact—demanding equality and recognition of difference, paradoxically constitute the manifestation of non-capitalist governance, setting up agreements and contracts from below [23]. The latter proposals do not exclude the possibility of building alternative governance that offers dimensions relevant to both the local and the global contexts, seeking common spaces with the concept of neo-institutionalist governance. Examples of such dimensions could be voluntary participation, horizontal decision-making, autonomy, coordination, association and self-regulation, among others.

In addition to these dimensions, common to the neo-institutional matrix, and the alternative view of governance, the environment should be taken into account. According to Ostrom [25], also associated with the school on New Institutional Economics, local contexts can be conducive to building institutions that allow self-management and self-regulation with positive externalities. This can be achieved by activating standards and conventions for the management of common resources, which is not possible without strong social relationships based on networks, rules, standards and social beliefs—that is to say, a comprehensive social capital. For the same author, these contexts, together with collective action and management of the institutions, leads to analysis at different scales in which local systems constitute a part of nested subsystems, which together define a *social-ecological system*, which is characterised, from the research point of view, by a whole series of variables defining collective action at different levels [26]. Another remarkable contribution is the book edited by Torre and Traversac [11] on the mechanisms and tools of territorial governance, such as multi-level coordination of laws and regulations, as well as the instruments of informative, deliberative and decisive encounters. Interpreting agreements and conventions as axes of institutional construction on a local scale and according to resource availability, a general framework of territorial governance and LAFS can be built upon the neo-institutionalist contributions, the social movements' alternative approaches and Ostrom's social-ecological system.

The contributions by the above-mentioned authors provide a more accurate definition of territorial governance, in that they enable the very dimensions of this concept to be established, as the capacity to construct and conserve the institutions at a local level, to facilitate macro-, meso- and micro-encounters, as well as dialogue for coordination [27]. Territorial governance is based on bottom-up management of processes of socio-economic and institutional proximity, in a decentralised fashion, by means of multiple forms of government, through forms of self-management and self-regulation of communities—conventions and agreements—and based upon institutions that facilitate coordination at different levels. In short, territorial governance is the capacity to construct (a) a public agenda with a bottom-up proximity-based focus; (b) decentralised forms of management combined with stakeholder autonomy; (c) multi-level forms of coordination, resulting

in reduced transaction costs through links of trust and reciprocity; and (d) forms of ecological and social management.

We are aware that territorial governance is a concept under construction which, according to Weberian methodology, can be compared to an ideal typology—the objective entails constructing a proxy of this concept within the context of rural change in Mexico, by means of exploring the four above-mentioned dimensions.

3. Material and Methods

The present paper attempts to establish indicators for the aforementioned theoretical dimensions and to provide a methodological viewpoint, in order to conduct comparative studies on LAFS. The territorial governance of LAFS is considered to constitute a complex system, not only because it includes many different types of local actors and institutions, but also because there are a great variety of producers' strategies of appropriation and value-addition, and a great variety of human and natural links between the LAFS and the environment. Based on the recognition of this complexity, the following requirements were established for the selection of case studies: (1) a noteworthy territorial anchorage of the product; (2) the existence of specific rural agro-industrial projects or practices related to different market scales—urban, regional, national or international; (3) LAFS development strategies are associated with the dissemination activities of higher education institutions; (4) collective action that provides evidence of cooperation and/or conflict for the development of the LAFS; and (5) environmental concerns in the use of natural resources.

Our empirical research consisted of field trips in which we first applied participatory observation techniques—non-structured methods based on conversations with the stakeholders from four LAFS—in order to verify the eligibility requirements, establish diagnoses and construct relationships of trust with the stakeholders. Our methodological approach involves a case study which, in accordance with the typology established by Yin [28], corresponds to research on multiple cases which in turn are subdivided into subunits—organisations of producers and small family businesses. In this sense, we conducted semi-directive interviews with relevant socio-territorial agents, applying a standardised questionnaire. To this end, the following stakeholders were selected: representatives of public administration, producer organisations and researchers and scholars, among other key actors. The questionnaire for the interviews comprised the following sections: the history of organisations or companies; participation of partners in meetings and in the decision-making process; agro-industrial, infrastructure and service activities; and marketing, dissemination and promotional activities linked with higher education institutions and with different levels of the public administration. Each of the main parts of the interview questionnaire corresponded to each of the dimensions of territorial governance that we defined in the Introduction. Table 1 shows the main features of the case studies—products, territorial analysis units and number of the interviews (30) and field trips (11), conducted from 2013 to 2015.

Table 1. Main characteristics of the case studies.

Locality	Product	Number of Organisations and Companies	Number of Interviews	Number of Field Visits
Tlalnepantla, Morelos	Prickly pear cactus (<i>Opuntia ficus</i>)	5 organisations and 1 company	16	4
Ixhuatlán del Café, Veracruz	Coffee	1 organisation	4	2
Los Reyes, Michoacán	Blackberry and other berries	1 organisation	4	3
S. Miguel Xochitecatitla, Tlaxcala	<i>Cuitlacoche</i> (<i>Ustilago maydis</i>) and other vegetables	2 family businesses	6	2
Total			30	11

Source: Own elaboration based on the field work (2013–2015).

Table 2 shows the description of the eighteen dummy indicators, grouped into four dimensions of territorial governance. First, the “multi-level coordination” dimension includes five indicators that entail the setting-up of agreements, both formal and informal, with three levels of public administration, as well as with higher education institutions and with input and technological companies. Second, the “democratic participation and accountability” dimension offers five indicators that reflect the organisation of meetings and assemblies, renewal of leaders, equal access to common resources, the existence of accountability as well as the capacity for dialogue and agreement of the stakeholders. The indicators assigned to the dimension, “cooperation among producers and other stakeholders”, make reference to the existence of joint purchase of inputs, infrastructures and collective savings instruments, to the participation in collective tasks, such as the maintenance of common land plots as well as to the prevalence of values that shape social capital of communities, such as trust in the spoken word in transactions. The final dimension concerns the “relationships between the LAFS and the environment” and includes four indicators; one indicator is related to the existence of territorial or environmental certification of products, another one involves the use of compost or bio-fertilisers and two refer to the management of common goods, such as water and forests.

Table 2. Descriptions of the dimensions and indicators of territorial governance.

Dimensions	Indicator	Description
1. Multi-level Coordination	1. Agreements with the municipal government	Agro-industrial, marketing and credit agreements
	2. Agreements with the state government	Agro-industrial, marketing and credit agreements
	3. Agreements with the federal government	Agro-industrial, marketing and credit agreements
	4. Agreements with higher education institutions	Agreements for technological research and innovation
	5. Agreements with input and technological companies	Particular relations with input and technological companies
2. Democratic Participation and Accountability	6. Organisation of meetings	Informative and decisional meetings
	7. Equal access to information resources	Access to information, transparency and assessment of public and private resources for innovative projects
	8. Accountability	Distribution and free access to accounting reports
	9. Regular renewal of leaders	Whether the leaders are renewed in a period of X (1, 2, 4, 6 or 8) years, according to the regulatory framework of the organisation.
3. Cooperation among producers and other stakeholders	10. Resolution of controversies by dialogue and negotiation	Differences are resolved within the framework of dialogue and negotiation, without physical confrontation
	11. Joint purchase of infrastructures	Joint purchase of vehicles or warehouses
	12. Collective saving instruments	Existence of <i>tandas</i> (informal saving associations), financial cooperatives, etc.
	13. Assessment and mutual support from other producers (solidarity and reciprocity)	Maintenance of land plots, logistics and participation in collective tasks.
	14. Value of the spoken word	Existence of cash or in-kind loans without a signed contract
4. Relationships with the Environment	15. Certification processes	Quality certifications (designations of origin, organic, fair trade, etc.), collective trademarks, etc.
	16. Use of compost or bio-fertilisers	The producers apply compost or other methods of agro-ecological fertilisation
	17. Agreements on agricultural water use	Communal systems of irrigation
	18. Agreements on protection and conservation of forests	Management of communal forests and other common resources

Source: Own elaboration based on qualitative information provided by interviewees.

There is a need to clarify critically the definition of these indicators. Firstly, at the territorial or micro-territorial level, as occurs with family farms, agreements are not necessarily formalised by means of written contracts; arrangements may be informal as a result of family uses and customs, and due to friendships and trust established with other actors. The same cannot be said, for example, for the multinational companies that market blackberries in Los Reyes, Michoacán, or coffee in Ixhuatlán del Café, Veracruz, where contract farming is generally set up with the most important producers—Agroindustrias Unidas de México is practically the only buyer of coffee. Likewise, overseas marketing of prickly pear cactus from Tlalnepantla, Morelos, relies on brokers with whom formal agreements are established; in particular, brokers of prickly pear rented a warehouse in the United States with the purpose of having greater control over marketing the product, thus integrating the

process at both local and global levels. Additionally, political agreements are not always reached, thus giving rise to violent conflicts, as in Tlalnepantla, Morelos, where communal landowners clashed with the ruling party, the Partido Revolucionario Institucional (PRI), when the latter refused to recognise the authorities nominated by traditional means and customs; this led to a divided community and limited access to the market for PRI sympathisers [29].

4. Location of Case Studies

The selected localities are located in Western, central and Eastern Mexico. They represent different forms of land ownership: *ejidos*, involving the cultivation of excessively small plots in San Miguel Xochitecatitla, Tlaxcala; communal land in Tlalnepantla, Morelos; and smallholdings in Los Reyes, Michoacán, and Ixhuatlán del Café, Veracruz. Our research therefore addresses both family and corporate farming systems. Figure 1 shows the locations of the case studies.

However, all localities are examined within a common framework referring to the concept of LAFS—farmers, agro-industries, retailers, service providers, institutions and collective action interact at the territorial level. Products are anchored to the territory in all localities as a result of specific edaphic, hydric and climatic conditions, on the one hand, but also as a result of particular mobilisation and value-adding strategies, developed by the producer organisations, by the family businesses and by other agents—such as universities or higher education institutions, the different levels of government and multinational companies. Taking into consideration their productive capacities and their linkages with the markets, these localities are not the poorest ones; rather, they are characterised by resource ownership as well as a good capacity for organization and collective action.

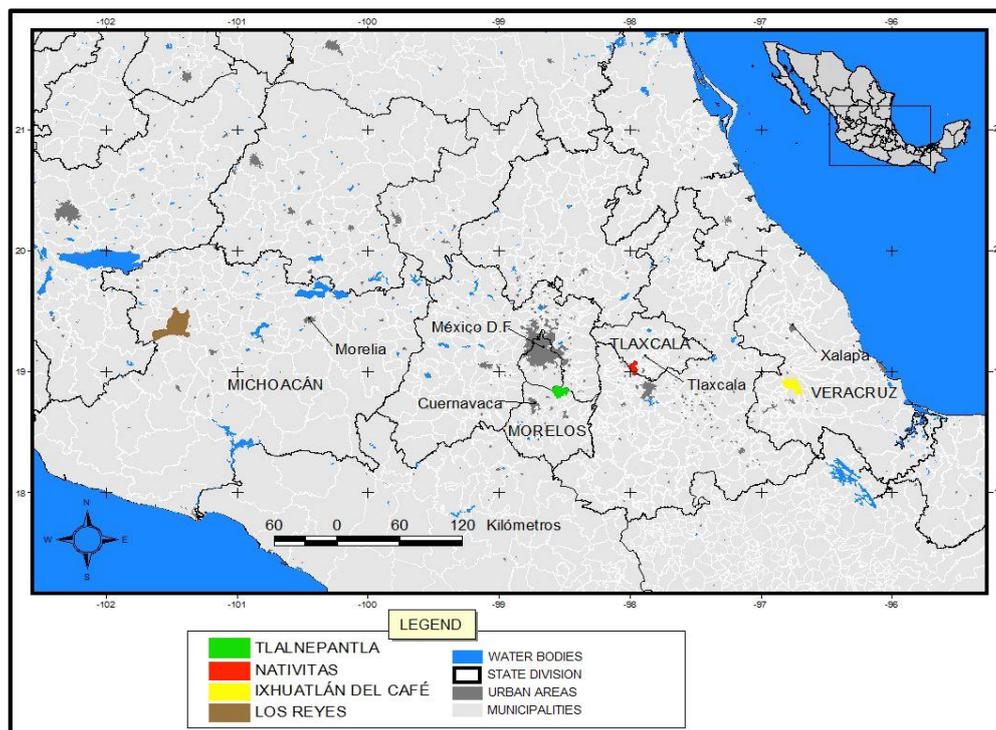


Figure 1. Locations of case studies. Source: National Institute of Statistics and Geography (INEGI, <http://www.inegi.org.mx/>).

This territorial anchorage of the products is, however, fragile and diffuse, as producers are in some cases dependent on urban and foreign markets, rather than on a steady and mature local market. In the case of Los Reyes, blackberry production is the result of recent crop conversion; fifteen years ago, the land was used principally for sugarcane production. Prickly pear cultivation and its related

agro-industry in Tlalnepantla are also recent and were developed in response to the low income generated by traditional crops, such as cereals and temperate fruits. In San Miguel Xochitecatitla, cuitlacoche and vegetables were grown in greenhouses to take advantage of their high prices on the Puebla, Mexico City and Tlaxcala markets. The price of this fungus decreased as a result of competition from other greenhouses, the fact that consumers showed a preference for it mainly during the rainy season and not throughout the year, and the tendency of urban consumers, observed since 2006, to buy canned edible fungi, massively imported from Chile and China [30]. In Ixhuatlán del Café, although inhabitants have possessed coffee-growing know how for over one hundred years, market risks and roya rust have forced many producers to convert their crop to *velillo* (plantain leaves used in the preparation of tamales) or to chayote (*Sechium edule*); the latter originated in Mexico, but as it is a species of the cucurbitaceous family, grown with stakes, it requires the coffee and shade trees to be removed, which gives rise to erosion. Another important environmental risk is posed by the eutrophication of water bodies, that is, excessive nutrient enrichment of water through runoff of chemical or organic fertilisers.

Crop cultivation created environmental problems in our case studies through the use of agrochemicals, wastewaters and conflicts related to irrigation, little interest in forest conservation, as well as ploughing to increase the cropping area; this is the case of avocado growing in Los Reyes and of chayote in Ixhuatlán del Café. Attempts to solve these problems have been made by town councils and academics, among others, but to date, producers have generally shown little concern in this sense. Environmental issues will not be addressed until consumers demand environmental certification. Table 3 presents some geographical data of the case studies.

Table 3. Geographical data on the case studies.

Variables	Ixhuatlán del Café, Veracruz	Los Reyes, Michoacán	San Miguel Xochitecatitla, Tlaxcala	Tlalnepantla, Morelos
Elevation	800–1900 m	900–3400 m	2200–2300 m	1700–3500 m
Total estimated population (2015)	23,005 Women: 11,557 Men: 11,448	69,723 Women: 36,133 Men: 33,590	2124 Women: 1145 Men: 979	7166 Women: 3566 Men: 3600
Temperature range	16–22 °C	10–24 °C	14–16 °C	8–20 °C
Precipitation range	1900–2100 mm	1000–1500 mm	800–1000 mm	1000–1300 mm
Land use	Agriculture (68%) Urban area (2%)	Agriculture (45%) Urban area (1.8%)	Agriculture (77%) Urban area (14%)	Agriculture (41%) Urban area (1.2%)

Source: Own elaboration, based on data from: <http://www.inegi.org.mx/geo/contenidos/geoestadistica/catalogoclaves.aspx> (accessed on 30 September 2017); <http://www.beta.inegi.org.mx/proyectos/enchogares/especiales/intercensal/default.html> (Encuesta Intercensal 2015. accessed on 30 September 2017); the data for San Miguel Xochitecatitla correspond to the 2010 General Population and Housing Census.

5. Results

According to the analysis of the indicators, observations and interviews, we address below each of the four dimensions, as well as an overall analysis of territorial governance.

5.1. Multi-Level Coordination

In this dimension, connection with higher education and research institutions is critical with regard to using technological resources and implementing innovations. Noteworthy in this respect are the links between cuitlacoche producers and the Institute for Scientific and Technological Research of San Luis Potosi (IPICYT), which provides the inoculum they need to infect corncobs and grow the fungus (interview with A. B., March 2013). The same question concerns the production of blackberry and prickly pear—producers from Los Reyes have established links with the National Autonomous University of Mexico (UNAM) and with the National Polytechnic Institute (IPN); producers in Tlalnepantla have strong ties with the UNAM and the Metropolitan Autonomous

University-Xochimilco (UAM-X), among other higher education institutions. The links with municipal governments are especially significant for interviewees but, in the case of producers of cuitlacoche, no relationship with municipal government was reported. Moreover, due to the greater importance of federal support programmes, compared with those of other levels of government, three localities actually have stronger links with the federal government than with the state government. It is only in Tlaxcala that a modest rural employment support programme is run by the state government, known as the State System for the Promotion of Community Employment and Development (SEPUEDE). This programme helped to boost cuitlacoche production in greenhouses in marginalised areas of the state. Ten greenhouses, each one of them being one thousand square meters in size, were set up under this programme in order to take advantage of the opportunity presented by this fungal crop. It is worth emphasising the importance of the agro-industry and of product processing for three of the four localities. In one locality (San Miguel Xochitecatitla), where there are no agro-industrial processes, producers and partners of two companies—Ecoagricultores del Sur and Tecnoagricultores—have their own processes of inputs and infrastructure generation, such as the design and construction of greenhouses, composting for fertilisers and even efforts to decontaminate the Atoyac river (direct observation, February 2013).

Furthermore, it was observed that family farmers—cuitlacoche producers or, in a more organised way, prickly pear cactus farmers in Tlalnepantla—are more likely to have their own distribution channels than farmers oriented towards the export—blackberry and coffee producers—which are controlled by marketing companies constituting a market close to monopsony. As will be discussed below, this fact has a great impact on the existence of different governance schemes.

5.2. Democratic Participation and Accountability

Horizontality and trust constitute two key elements for building the social capital required for achieving territorial governance. With regard to this dimension, there appears to be a large gap between localities, especially when it comes to transparency, access to information and regular replacement of leaders. This gap is particularly wide for women—as they must first have the permission of their husbands, it is extremely difficult for them to develop projects. They also have to overcome the old customs of the community's decision makers in order to see their rights respected, to guarantee access to the resources they need. In San Miguel Xochitecatitla, for example, a group of women from Ecoagricultores del Sur attempted to develop a greenhouse pond for tilapia aquaculture alongside cuitlacoche or vegetable production. After some time, the authorities of *ejido* denied them resources under the pretext that they were wasting water. This raised the question of whether the decision was related to the fact that some of these women had been warned by their husbands that they were not allowed to farm the fish, thus creating an atmosphere of discouragement (interview with M.C. and M.G., February 2013).

5.3. Cooperation and Conflict among Producers and Other Stakeholders

Although relationships of trust are considered typical of rural Mexican communities, serious conflicts do occur in the studied localities. Some of them are of a political nature, as is the case of prickly pear producers in Tlalnepantla, divided by the election of the municipal president, which resulted in a violent clash between state police and communitarians, but also among people in the same community. A political conflict also occurred in Ixhuatlán del Café, where the mayor, a member of the National Action Party (PAN), was surrounded by adherents of the Institutional Revolutionary Party (PRI). Other disagreements resulted from the family nature of companies, for example, in San Miguel Xochitecatitla. In other cases, confrontation arises because companies distrust small producers—Michoacán blackberry producers, for example, experience serious difficulties when trying to market their product and are often left selling it at the roadside. It should, however, be pointed out that the capacity for industrial processing of a product that is not marketed for export is only incipient—it is limited to preparing flavoured waters, juices and cakes (interview with C.M. in Los Reyes, July 2014). It is clear that, in these

contexts, the degree of horizontality or verticality of coordination depends on the final destination of the product, regardless of the efforts made by the producers to appropriate add value. It is therefore obvious that for blackberry, and even more so for coffee, producers' dependency on distribution channels imposed by companies like Driscoll's and AMSA, greatly determines the actions existing in the locality.

5.4. Environmental Management

The demands of large companies concerning the distribution channels for organic products and product certification requirements are clearly forcing producers—especially those of coffee and, to a lesser extent, those of prickly pear—to adopt certain environmental protection measures. When producing blackberry or cuitlacoche, however, environmental concerns are of a different order—in Los Reyes, the risks derived from the use of wastewater that can affect the food safety of the product are a major concern, while in San Miguel Xochitecatitla, the main issue of the family businesses producing vegetables in greenhouses involves pollution of the river Atoyac, produced by the denim industry, and the availability of enough water suitable for irrigation. The latter producers, by forming part of the company, Ecoagricultores del Sur, are able to produce their own compost, which is then used in the greenhouses. However, interviews show, for the production of blackberry and prickly pear, massive use of pesticides, neglect of the water bodies and contamination, thereof, by fertilisers. This has led organisations and companies to seek linkages with research institutions, which can provide them with alternatives and help them avoid the risk of losing income, not only because their products are rejected at the US border, but also because high-profile consumers prefer certified products. On the other hand, there is practically no forest protection in Los Reyes, Michoacán, in Tlalnepantla, Morelos, or in Ixhuatlán del Café, Veracruz. Forest, on the high parts of the Los Reyes Valley is being cut for avocado planting. In Tlalnepantla, regarding the designation of the Sierra del Chichinautzin as a Protected Natural Area, in 1988, most settlers were not informed or consulted about this designation [31] (p. 63). Although social participation and coordination between the three levels of government appear to be recognised in legal documents, social exclusion issues are still a reality.

According to Paz Salinas [31] (pp. 79–80), three main problems persist: (a) poor coordination between the different government entities; (b) the fact that social participation remains mostly theoretical and is rarely put into practice; and (c) the historic relationship that settlers have maintained with their resources, thus bringing about frequent conflicts with the government, which can only be overcome with the active involvement of community landholders and owners. In Ixhuatlán del Café, cutting down coffee plantations and shade trees to plant chayote has resulted in increased deforestation and higher water consumption. Independent of fieldwork observations, data from the Agro-Food and Fisheries Information System (SIAP) of the Secretary of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA) reveal that after a total of 180 hectares were planted with chayote in 2003, this area was reduced to 85 hectares in the following years, before increasing again to 115 hectares in 2015. In this same year, no agricultural damage (0%) was reported in the areas planted with chayote—totaling only 2.8% of the harvested area of coffee—while those planted with coffee caused 38% of the agricultural damage.

5.5. Territorial Governance: Dimensions, Indicators and Models

Table 4 presents the values for eighteen indicators of territorial governance, grouped by dimensions, of the four studied LAFS. Each of the variables has been considered as a dummy variable (0, 1)—a value of 1 was given to the variable when the attribute was present and a value of 0 when it was not. The score values serve to establish a scale for the different dimensions: high values show good performance of the dimensions and low values show poor performance (from 0 to 2 for the dimensions possessing 5 indicators or from 0 to 1 for those with four). Table 5 shows the average level of each of the four dimensions of territorial governance in the four cases studied.

Table 4. Values for the indicators of territorial governance.

Dimension	Indicator	Ixhuatlán del Café, Veracruz	Los Reyes, Michoacán	San Miguel Xochitecatitla, Tlaxcala	Tlanepantla, Morelos
1. Multi-level coordination	1. Agreements with the municipal government	1	1	0	1
	2. Agreements with the state government	0	0	1	0
	3. Agreements with the federal government	0	1	0	1
	6. Agreements with higher education institutions	1	1	1	1
	5. Agreements with input and technological companies	1	0	1	1
	Score Value	3	3	3	4
2. Democratic participation and accountability	6. Organisation of meetings	0	1	0	1
	7. Equal access to information to resources	0	1	1	1
	8. Accountability	0	0	0	1
	9. Regular renewal of leaders	0	0	0	1
	10. Resolution of controversies by dialogue and negotiation	1	1	1	0
	Score Value	1	3	2	4
3. Cooperation among producers and other stakeholders	11. Joint purchase of infrastructures	0	0	1	1
	12. Collective saving instruments	0	0	0	0
	13. Assessment and mutual support from other producers (solidarity and reciprocity)	0	0	1	1
	14. Value of the spoken word (cash or in-kind loans)	0	0	1	1
	Score Value	0	0	3	3
4. Environmental management	15. Organic and fair-trade certification processes	1	1	0	1
	16. Use of compost or bio-fertilisers	1	0	1	0
	17. Agreements on agricultural water use	0	1	0	0
	18. Agreements on protection and conservation of forests	0	0	0	0
	Score Value	2	2	1	1

Source: Own elaboration based on interviews.

Table 5. Dimensions of territorial governance: average level.

Territorial Governance Dimensions	Ixhuatlán del Café, Veracruz	Los Reyes, Michoacán	San Miguel Xochitecatitla, Tlaxcala	Tlanepantla, Morelos
Multi-level coordination	Medium	Medium	Medium	High
Democratic participation and accountability	Low	Medium	Medium	High
Cooperation among producers and other stakeholders	Low	Low	High	High
Environmental management	Medium	Medium	Low	Low

Source: Own elaboration based on Table 4.

Two main models of territorial governance in the studied LAFS can be identified. The first one is a rather endogenous process, driven by urban markets close to LAFS for prickly pear and for cuitlacoche. It is characterised by the existence of a number of actors offering their technology, which can easily be appropriated by farmers, and by the capacity of farmers to maintain a relative degree of control over the marketing processes. The second model, not endogenous, refers to territorial governance based on vertical coordination relationships driven by a more distant market and long circuits, depending largely on a very limited number of big companies (such as Driscoll's for blackberry production or AMSA for coffee), which are simultaneously input suppliers and buyers.

In the first model, Tlanepantla's prickly pear producers exhibit the highest scores for the following two dimensions: multi-level coordination, and democratic participation and accountability. They are also characterised by possessing a great community-based cooperation system which is embodied in the Tlanepantla Prickly Pear Producers Council (Comunotla). The existence of this council of associations favours accountability, due to the existence of self-regulation and self-control mechanisms among the associations.

The cooperation dimension of the small family businesses in San Miguel Xochitecatitla and in Tlanepantla scores the highest values. In the first locality there is a type of social capital that depends upon the family circle, which is quite closed to the community. However, the family businesses are

involved in Tlanepantla a more open and relational social capital that provides some advantages of market access by the producers, particularly in Mexico City's Flower and Vegetable Wholesale Market, where they possess their own marketing spaces.

This first model, linked to urban markets, like those in the City of Mexico and other nearby ones, tends to promote production intensification and to influence the forms of organisation and the political dynamics of the community. First, intensification endangers environmental practices, enhancing monoculture and the deterioration of protected areas, such as the Chichinahutzin Natural.

Protected Area near Tlanepantla—we can see its poor score value for the environmental management dimension. Second, the strong links to urban markets also explain the conflicts existing between an organisation, needed for attaining very dynamic markets and the traditional forms of self-government in Tlanepantla—the indicator 10 “resolution of controversies by dialogue and negotiation” is null, because a hard struggle took place for the municipal presidency elections.

The second model of territorial governance consists of a localisation that takes the territory's comparative advantages into account, albeit responding to the interests of international markets and big companies that are at the same time technological suppliers and buyers of the producers. It is mainly oriented toward the firms' decisions and toward the demands of distant consumers. The model operates in a context in which the actors are mobilised, tending to rapidly appropriate the technology and build know how and a culture around the products, which gradually take on a distinctive territorial character—certification processes are implemented (indicator 15). Thus, actors from Los Reyes, associated with large companies, such as Driscoll's, have created unique blackberry varieties and those from Ixhuatlán del Café have attempted to obtain a sub-designation of origin for their coffee. On the contrary, the organisations of these LAFS show particularly poor score values for the cooperation dimension, as well as for indicators of accountability and regular renewal of leaders.

In these entrepreneurial models headed by big companies, international firms, together with the largest producers, promote land conversion to blackberry or coffee production. These LAFS score a value of 1 for indicator 10, which means that the conflict has been regulated by dialogue and market negotiation, even under asymmetrical conditions—in Los Reyes, blackberry farmers versus Driscoll's, and in Ixhuatlán del Café, coffee producers versus AMSA: a monopsony. As a result of this kind of alliance, producers with smaller holdings and technological limitations tend to lose power over decisions regarding water use, hence weakening the relationships of trust among territorial actors. Territorial risks of this type of territorial governance, related to water use, monoculture and loss of biodiversity, must also be considered.

In light of this context, results suggest that territorial governance systems, driven by markets with geographical, institutional and cultural proximity, appear to be better coordinated with the different levels of government and have better control over their relationships with public institutions. These results are consistent with Ostrom's expansive social capital approach and with the decrease in transaction costs resulting from the existence of trust relationships among the stakeholders.

6. Discussion and Conclusions

The territorial governance of LAFS is an issue that remains empirically underexplored. The dominant approaches in relation to these systems focus on corporate concentration and its effects on the agro-industry, marketing and consumption, as well as on geographical indications and designations of origin. Further reflection is required, however, on the mechanisms and institutions governing these systems.

The present paper attempts to provide a discussion on territorial governance, by presenting both the neo-institutionalist position and an approach qualified as an alternative, with a view to highlighting the dimensions that can be relevant to understanding the territorial dynamics of LAFS. In accordance with the proposals put forward by economic neo-institutionalism, by Ostrom's analyses of collective action and by De Sousa Santos' alternative models based upon recognition of difference, forms of cooperation can vary from one territory to another—they depend on local learning alternatives and on

the relations of coordination established among the local stakeholders, but also upon the characteristics of the markets to which the identity-based food products are directed. Whilst in the models of long and global chains, governance relations tend to become debilitated, in the proximity model, synergies can be achieved among the actors involved in production, the local institutions and the consumers.

We have proposed indicators to provide a picture of the behaviour of these systems in the following areas: multi-level coordination, democratic accountability, cooperation and conflict among producers and other stakeholders, as well as the environmental dimension. In order to determine the relative importance of each dimension of territorial governance, the results of the empirical analysis have been presented for four LAFS.

The results of the research presented herein suggest the decisive role played by the geographic, social, institutional and cultural proximity in LAFS. The latter are characterised by the collective actions of communities and family businesses, primordially based upon relations of trust and on the existence of urban markets with consumers who are familiar with the identity-based and quality food products. The same does not occur with LAFS whose governance is dictated by multinational companies and who supply geographically distant markets in which relations of trust or proximity play a secondary role.

The results also suggest that some paradigms, such as the dichotomy between local endogenous development and external globalisation, have to be reviewed in light of the collective actions promoted by territorial stakeholders, in order to appropriate and retain added value. However, there is a need for more comparative studies addressing the management and decision-making mechanisms of families, companies and rural communities, in relation to the development of LAFS.

In accordance with the dimensions of territorial governance explored in this article, we are inclined to think of territorial governance not only as being limited to the public management of processes related to the mere quality of government, but also as encompassing the socio-economic processes and environmental dimensions affecting land uses. It also appears that a LAFS is not only a conglomerate of companies grouped around a product at a given spatial scale and aimed at developing agriculture, services and industrial transformation. It also addresses complex processes of social action in which decisions are made and policies, programmes and public actions are implemented according to territorial particularities and to the way the product's place of origin is connected with the local and global markets. These facts have an unequivocal impact upon the community's social organisation.

In short, and without seeking to construct definitive models of territorial governance, two types of LAFS may be distinguished: those that can be strengthened by the geographical and organisational proximity of the markets and the action of local stakeholders and governments—prickly pear cactus and cuitlacoche—versus those which are devoted to export and conducted by large companies in which marketing networks involve certification mechanisms and a large number of institutions and agents—coffee and blackberry. Failures of territorial governance occur more easily in LAFS presenting a geographical and organisational distance between the stakeholders and institutions of the whole value chain.

Knowledge of the unique aspects of the territorial governance of these systems is crucial with regard to establishing new research topics and defining new local-scope public policies. Understanding the specific model of territorial governance of LAFS constitutes a core aspect for the design of particular and multifunctional rural development policies in which we take into account the spatial relationships of LAFS with other production systems. Furthermore, a sound territorial food identity, a necessary condition for the anchorage of LAFS throughout time, requires a high level of empowerment of the local stakeholders, for which, in turn, there is a need to meet the requirement of self-government of the local actors, as stated by Stoker [17] in outlining his five proposals on the concept of governance, and is also inherent to the proposals of Ostrom [25].

Coordination of the different government entities, involvement of companies and settlers, verifiable mechanisms of participatory decision-making, clarity in agreements, conflict resolution and, finally, incorporation of an environmental sustainability dimension, are also crucial in this respect.

If we want LAFS to become systems of territorial development, they must be studied and analysed not as isolated subsystems, but rather as a set of inter-connected stakeholders and institutions and as integral parts of other broader systems.

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