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Gastronomic Sustainable Tourism and Social Change in World Heritage Sites. The Enhancement of the Local Agroecological Products in the Chinampas of Xochimilco (Mexico City)

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Abstract: In the Xochimilco area, within the urban perimeter of Mexico City, a unique ancestral agri-food production system persists: the chinampa system, also called chinampería. The chinampa agri-food production is a World Heritage inscribed by UNESCO and contributes to the sustainability of both the peri-urban wetland and the city. In addition, the Xochimilco area is also one of the most important domestic tourist destinations in Mexico City. The current situation of Xochimilco struggles between two core economic activities: agriculture and tourism. Although both activities contribute significantly to the development of the area, both have been noted as systematically damaging the local environment. However, emerging agriculture practices through agroecological production seem to have a positive impact in terms of better tourism praxis where the gastronomy of chinampero product plays a pivotal role. In this article, we will analyze the role of tourism in the area as a massive distorting and contaminant activity, but also from the positive perception and the possibilities of gastronomic tourism as a new responsible modality of tourism linked to sustainability and the *mise en valeur* of the chinampa agroecological products.

Keywords: chinampería; peri-urban agriculture; sustainability; gastronomic tourism; enhance value



Citation: Medina, F.-X.; Vázquez-Medina, J.A.; Covarrubias, M.; Jiménez-Serna, A. Gastronomic Sustainable Tourism and Social Change in World Heritage Sites. The Enhancement of the Local Agroecological Products in the Chinampas of Xochimilco (Mexico City). *Sustainability* **2023**, *15*, 16078. <https://doi.org/10.3390/su152216078>

Academic Editors: Iwona Cieślak and Katarzyna Pawlewicz

Received: 12 October 2023

Revised: 7 November 2023

Accepted: 10 November 2023

Published: 18 November 2023



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1. Introduction

Mexico City has more than nine million inhabitants and is part of the nucleus of the Valley of Mexico, one of the most dense and populated urban areas in the world (around 22 million inhabitants) [1]. However, despite its indisputable urban character, the territorial demarcation comprises almost 60% of conservation land, which represents around 87,000 hectares used for several purposes. Among them, the following can be identified: agri-food production, semi-rural residential or tourism [2]. As the Government of the City of Mexico defined, the combination of ecosystem richness and human's modeling action has resulted in a varied and complex landscape mosaic in the conservation land, which must be preserved due to the important environmental services that it provides to the inhabitants of Mexico City. Additionally, as they specifically added, the modeling actions of humans, through diverse exploitations of this space, has also contributed to shaping the landscape. Perhaps the best-known example are the "chinampas", a farming system developed by the pre-Hispanic cultures of the Valley of Mexico, which remains to this date [3].

The territorial area of Mexico City has sixteen municipalities. Among them, seven (mainly peri-urban) are suitable for family farming. A significant portion of the agricultural land, as well as the fresh produce grown in this part of the city, comes from the chinampera area, which is a fertile wetland area belonging to the southern municipalities of Xochimilco,

TLáhuac, and Milpa Alta, covering around two thousand hectares. In some of those areas, mainly vegetables and flowers are grown.

Agri-food production in this partly lake area which is surrounded by waterways comes from what has been called chinampa cultivation. The chinampas are artificial agricultural islets built on lake areas of the Valley of Mexico, with a record of the practice dating back around 2000 years [4]. Originally, these were floating islets. However, the chinampas are today held to the ground and nourished by mud from the lake area, plant matter, and roots of the tree known as *ahuejote* (*Salix bonplandiana*), endemic to the area.

In addition to being one important agro-productive part of the territorial area of Mexico City, the *chinampera zone* has a relevant cultural component related to ancestral ways of production and cultivation, inscribed as being part of the World Heritage by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1987 (Inscription on the World Heritage List of the Historic Center of Mexico and Xochimilco, ref. 412) and as a part of World Agricultural Heritage (Important Production Systems Agriculture, GIAHS) in 2018 by the Food and Agriculture Organization of the United Nations (FAO). From Xochimilco, what stands out in the UNESCO inscription is, precisely, the way of cultivation using the chinampa system.

The chinampería has also been recognized for its outstanding sustainable nature, which allows the recovery of the soil and the maintenance of the environment, and it has also been recognized as an achievable alternative (mainly of a family nature, as in relation to the highlights of the GIAHS [5]) to mainly intensive agricultural production.

About twelve thousand people work in the chinampera area, mainly cultivating vegetables and flowers, which include 51 domesticated agricultural species and 131 species of ornamental plants [4]. As González-Carmona and Torres (2014) pointed out [6], the agriculture carried out in the chinampas makes full use of the water from the wetlands, the richness of the soil and the natural fertilizers of the sediments while maximizing the resources of the environment. These authors also highlight how the layout of the chinampas creates a versatile space that gains ground from the water. Likewise, they emphasize the importance of the traditional technology used, which allows harvesting up to five times a year [4], while favoring local endemic polycultures that give identity to the territory.

The chinampa system also preserves ancestral agricultural technologies since farmers preserve traditional cultivation methods that have persisted over time [7]. Similarly, in the chinampas, some of the main crops whose use has been maintained since pre-Hispanic times are still grown: corn, beans, zucchini, and amaranth, among others [4]. These living and constantly evolving productive systems have maintained the different identities of the local communities thanks to the unification of values such as community, history, and a sense of belonging to the land [5].

The chinampería has an important historical depth that is rooted in pre-Hispanic times. In addition, it is a highly effective system when cultivating a limited area of land. Nevertheless, today, the chinampería faces significant challenges, limitations, and risks. We have, on the one hand, the current environmental and social conditions, such as water contamination in some parts of the wetlands or the irregular landfills that can be found in the area, the urban pressure on conservation soils, the abandonment of agriculture, problems with land ownership, change in land use (irregular urbanization, tourist uses, soccer fields. . .), the intensification of agriculture and the use of agrochemicals, and the growing tourist activity that takes place in the area, concerning both national and foreign tourism [8]. On the other hand, we have the increased use of motor boats in the protected space, which have substantially diminished the positive perspective of chinampero products destined for human consumption [9,10]. It has also caused a widespread stigma that discredits chinampero products, translating into the rejection of them among the population both in their immediate environment and in general [11,12].

All of this, along with a precarious economic situation, has caused small local farmers to have limited or no access to markets. Consequently, they are gradually abandoning this agricultural practice due to the low profitability that it represents. They also lack the

knowledge and technologies required to value their production [13], and, finally, they face significant health risks due to the excessive use of pesticides. (FAO, 2014: 05) [14].

Faced with these risks, we see today how different actors and institutions of civil society are joining increasing efforts with the aim of establishing agroecological practices that can, on the one hand, ecologically restore the wetland ecosystem and, on the other hand, promote safe and quality agri-food production. Likewise, it seeks to create, at the same time, alternative distribution networks and new distribution channels for chinampero products. In addition, as Bertran [15] points out, although the overflowing growth of the Mexican capital, the product of industrial development and various centralizing projects, has reduced its rural and conservation areas, and although urbanization has led to a decline in the productive areas, populations dedicated to agri-food activities have persisted.

From the body of civil society (including diverse actors, such as universities or private agents), actions have been realized that aim to recover and protect the ecosystem. On the other hand, another important objective is to highlight Chinampa agroecological products through the revitalization of the agro-productive chain [7]. The purpose of this last objective also coincides with the principles proposed by the ECLAC [16], looking for the local development of traditional gastronomy using ingredients that have identity, the promotion of family farming, and the progressive transformation to agroecological production.

Currently, the main focus is on trying to legitimize the value of chinampero practices and products through the recognition of differentiated sensory attributes [13]. Likewise, it is about promoting the study of the cultural, social and environmental values that can be associated with these products and channeling them toward consumers who are increasingly interested in the origin of the products they consume [7]. From this perspective, the fact of recovering, as much as possible, the ancestral agroecological and patrimonial systems of the area is also particularly relevant. In this regard, and as Denevan [17] pointed out, the agroecological lessons that can be learned from the study of old fields and methods come from soft technology based on cultivation techniques, soil, and pest management, as well as hard technology based on landscape modification to improve the environment cultivation, increasing the availability of water by drainage, erosion control and microclimatic modification.

What is exposed here is contributing to rapprochement between production and consumption but also the establishment of new consumer values attributed to chinampero products. We see how those products are also mobilized within other broader social processes, among which we can highlight tourism as one of the aspects that have favored greater knowledge in terms of the local environment and the chinampera area.

It is appropriate to point out that the imaginary perception of Xochimilco, both as an important sector for the inhabitants of Mexico City and for visitors, has been constituted mainly by the creation of a tourist environment and a leisure center within the city. Therefore, for most of the inhabitants of the central areas of Mexico City, contact with Xochimilco is usually restricted to rides in *trajineras* (boats adapted for group recreational activities) as one of the preferred leisure activities to get to know the area.

As Pérez-Galicia mentions, tourism in Xochimilco was generated for development purposes at the beginning of the 20th century in order to encourage economic activity in the region, seeking “progress derived from economic activity per se and through public works that would take modernity to the area, although it left aside the environmental elements, which were not seen as under any risk of deterioration” [18]. However, the social-environmental crisis, accelerated, among other reasons, by tourist activity, led to the rise of other ways of practicing tourism, focused, as the author mentions, on what is called *conservation tourism*, which privileges environmentalist perspectives over the traditional praxis of carrying out the said activity and which began to be implemented in Xochimilco in the first decade of the 21st century [18]. Although the development of this type of tourism is quite incipient, its presence is increasingly visible.

In the case of Mexico City, as mentioned again by Pérez-Galicia et al. [19], it is possible to appreciate that in the rural-urban area of the south, the geography offers unique vistas,

and is populated by original towns and neighborhoods that provide complementary services for visitors. Those services are used by tourist agencies (public or private) to promote new segments, among which ecotourism, adventure tourism, gastronomy, festivities, and rural and experiential tourism stand out. These last two stand out for being developed in communities where the primary economic activity is agriculture so that visitors are integrated into the population's own practices, which can go from land preparation to product transformation.

As the authors point out, in some countries, this kind of tourism is intended to promote confidence in agricultural products, which is useful at this time when there has been a growing rejection of products produced through the use of agrochemicals so that farmers can benefit from both the visits and the image that they create [19]. It is particularly interesting in terms of tourism since, from different perspectives, it is related to several problems in the area: demographic pressure, water pollution and change in the use of the land of the agro-productive area, and with the chinampas, the abandonment of the agri-food activity and the change of socioeconomic activity by the local population. From this perspective, and considering all the above, depending on the type of tourism we are referring to, it can be either part of the problem or an eventual solution to it.

Within the framework of this type of tourism, the promotion of agri-food products has become a strategy to promote the environment. However, it is slowed down and obstructed by several social-environmental factors that have accelerated since the 1980s and that play against it (wastewater, demographic pressure, and changes in the use of land). Although experiential tourism activities from the gastronomic field that promote the consumption of chinampero products are increasingly frequent, they are aimed at a sector clearly restricted to a specialized public that is inserted within the elites of the culinary scene of Mexico City and the surrounding areas [7]. In this regard, the Xochimilco area is complex and faces conflicting interests, such as those of residents, producers, tourism promoters, merchants and vendors, restaurant owners, environmentalists, academics, visitors, and tourists.

Given the situation of the area described so far, this article aims to answer the following question: From the perspective of local actors, could gastronomic tourism enhance chinampa agroecological food products and improve the sustainability of tourism activities in the chinampera area?

2. Literature Review

2.1. Agri-Food Tourism as a Potential Alternative of the Enhancement of Local Gastronomic Products

In the scientific literature and in the reports of specialized entities, such as the World Tourism Organization and federal governments, it is stated that gastronomy tourism and, more specifically, tourism that is interested in agri-food, brings different benefits to the host society [20], among which the actions of conservation, valorization and safeguarding of culinary heritage stand out. We also have aspects that include the transmission of ancestral recipes, the creation of mechanisms for the transmission of knowledge related to the production of food with territorial identity, and the conservation of traditional forms of agriculture or the establishment of ways of protecting the products and/or dishes. In this regard, it is considered that traditional gastronomy helps to understand the intangible heritage, gastronomic culture, and local consumption of a destination [21].

As Gascón states, agri-food products linked to the territory have the peculiarity of being elaborated/produced on a small scale. They are linked to specific geographical conditions and are usually part of local traditions and shape the identity of rural societies [22]. Gastronomic tourism is, following up with this same author, a form of post-Fordist tourism, characterized, according to this same author, by constant innovation and great competition, which allows increasing the weight of demand, valuing the specificity of the food experience, often expressed in products rooted in the territory and of limited production, seeking to differentiate itself from aesthetic visions of gastronomy and opposes the massification promoted by modern agriculture [22,23]. As Liu et al. [24] state, the concept of

agri-food-tourism is based on a practical economic model that describes the transition from a market-oriented production strategy to a service-oriented sustainability strategy.

In this regard, and talking about food and gastronomy, tourism, and sustainability, we must clarify from the beginning that we are interested in proposing sustainability primarily of a social nature, as well as, consequently, an environmental nature. As Kandachar points out, the term “Sustainability” has evolved in recent decades to encompass three major aspects: social, economic, and environmental sustainability. Nevertheless, the concept seems to have been developed mostly in relation to environmental and economic sustainability. Thus, the neglected aspect, social sustainability, deserves urgent attention [25].

Stren and Polese [26] defined social sustainability as development that is compatible with the evolution of civil society. This compatibility involves a necessary coexistence or cohabitation between the environment (considered not only as a natural framework but as a social context) and the culturally and socially diverse groups living in those contexts and needing improvements in the quality of life for all segments of the society. In this way, social sustainability points toward the vital development of societies and specific social groups, with a focus on the cultural coherence, strength, cohesion and stability of the populations of which they are composed [27].

Uniting the concepts of socio-environmental sustainability, food and gastronomy, and tourism, we could say that we are talking here about the development in the territory of activities that, due to gastronomic tourism, coincide in part with the best-known meaning of ecotourism: a type of responsible travel that conserves the environment, sustains the wellbeing of the local people, and involves interpretation and education (<https://ecotourism.org/>, assessed on 12 September 2023). From this perspective, and as Wabnitz [28] points out, tourism should take advantage of the growing interest in sustainable food systems and cuisine by promoting socially responsible and sustainably sourced gastronomy that does not undermine local food security and the health of the very ecosystems that the sector depends upon.

It also should represent an opportunity to rediscover the diversity of gastronomic heritage after the predominance of the food industry has undermined local diversity, as claimed today from cultural perspectives [29]. It is then, and as stated by Barrera and Bringas (2009, quoted in Thomé-Ortiz [30]), a modality of tourism that is remarkably rural and based on local products, which starts from the patrimonial nature of food in the contemporary commercial context, where singularity takes a high value, associated with its origin and history. All of this, in addition to being a playful and educational activity, expresses the agri-food chain from the ground to the table (Barrera and Bringas, 2008, quoted in Thomé-Ortiz [30]).

Following the work of those authors, agri-food tourism can allow a productive restructuring of the rural environment based on the revaluation of the economic, social, and ecological interfaces of food when deployed as tourist capital. Thus, Gascón [23] argues that agri-food products transmit identity, tradition, cooking and, in general, what a particular production system of a territory represents. Moreira [31], from his perspective, affirms that valuing and preserving the gastronomy of a certain community or region presupposes appreciating that it is in local agriculture where the origin of the products used is found. Therefore, experiencing the typical food authenticity of a territory implies an active attitude and contact with the local population and their own ways of life, and can provide an experience of more direct cultural contact than other type of tourist practices. We cannot forget that, as Gascón himself points out in this regard, merchandise heritage would then be the result of an economic rationality that transforms it into an industry with added values and presents it to the eyes of the market as consumable objects [23].

2.2. The Mise En Valeur of Agri-Food Products in the Context of Gastronomy and the Food Systems

The definitions of the concept of food systems take us, in a general way, to those activities related to the production, distribution, and consumption of agri-food products.

Thus, these activities would also be those that configure the nutritional bases of society [32]. As these are complex systems, they involve actors and interests of all types from both the public and private sectors [33–35].

It should be noted, however, that the value of some specific products often has a lot to do with the perceptions of the proximity of their production and their environmental footprint by the actors in the food chain. Thus, we have the conception of “local products”, whose meanings, according to Brunori (quoted in Rinaldi, 2017) [36], could be typified in relation to aspects such as their functionality (health and taste), ecological footprint (locality, landscape, biodiversity. . .), aesthetics (diversity vs. standardization), ethics (authenticity and identity), or politics (production and consumption patterns). In the specific case of Xochimilco, we can also add “heritage” to this list, an aspect that also comes into play after its international recognition as cultural heritage. In this regard, and as Salas [37] points out, the enhancement of an agri-food product also enhances territorial and identity representations, as well as symbolic and economic practices that strongly influence those differentiations.

As Richards [38] affirms, gastronomy, in its conceptualization, must necessarily consider the means of production and acquire a sense of locality and regionalism. Likewise, as Santich [39] states, the concept of gastronomy necessarily implies talking about social, historical, and cultural values. Santich herself [40], within the conceptualization of gastronomy (in its English language conception of the academy assumed as Gastronomy Studies), assumes that it must place special interest in the production of food and the way in which it is produced, the political economy, and the treatment of food itself, such as its storage, transportation and transformation; preparation and the way in which food products are cooked; the meals and their ways of eating, and the very chemistry of the food; digestion and physiological processes in which food is related; and food preferences, customs and traditions (Santich, in Scarpato, 2002) [40].

From the above-mentioned statement, we propose that gastronomy can interfere with all stages of the food system, paying equal attention to production as well as to preparation and consumption. Likewise, and as food anthropologists and historians such as Mintz [41], Pilcher [42] or Gabaccia [43] have discussed, gastronomy can also build a territory based on the recognition of its flavors and the acceptance of the forms of preparation. Under this premise, the territory can also be built with a sense of belonging to a given space that is expressed through the meanings that are given to gastronomy, which is implicit in the ways in which food is produced and the form and representations of its consumption.

2.3. Tourism, Gastronomy, and Environment in Xochimilco

Although there is a wide scholarly corpus that has focused its research interests on the environmental issues in Xochimilco, there is little work that has elucidated the effects of tourism and their connection with gastronomy. For this study, the relevant work carried out by Pérez-Galicia [18,19] set the basis for analyzing the rise, development, and diversification of tourist activity in this area. We pay special attention to the research conducted by the author that set the path toward potentially more sustainable tourism praxis. In this regard, the work of Eakin et al. [44] also illuminates how collective agency among food producers in Xochimilco can face structural environmental problems. Finally, the study of Paez [45] elucidated how local chinampero production is a part of food heritage that contributes to better praxis in terms of tourist activity.

Regarding the study of sustainability in terms of chinampero food products and its implications in relation to the gastronomy arena, we take into consideration the work of Arroyo-Lambaer et al. [46] concerning a labeling process that can change producers' and consumers' behavior toward long-term sustainability. The work of Pasquier and Monachon [2] is relevant for identifying some actors involved with the food network that commercialize chinampero products. Likewise, the work of Figueroa et al. [10] is relevant to understanding how the profitability of agroecological chinampa production can be observed as a means of strengthening traditional agroecological production, producers'

wellbeing, and the food sovereignty of the city. Finally, the works conducted by Covarrubias et al. [13] and Vázquez-Medina [7] analyze how chinampero products have been incorporated into the Mexico City gastronomic arena through a series of strategies that aim to link producers and potential consumers.

3. Methodology

This study is based on a qualitative perspective with a phenomenological approach and observed from an anthropologic perspective. To obtain the empirical findings, a combination of techniques widely used in the social sciences was carried out. As a first approach to the research object and due to a larger project related to agri-food products in Mexico City related to the labeling of chinampero products carried out between 2019 and 2020, and then in 2022, we conducted participant observations to obtain a better understanding of the current socioenvironmental situation of the chinampero zone. Thus, we were able to identify chinamperos producers, academics, restaurant owners, tourism promoters, and tourists as key actors in relation to our research object. In all cases, the different groups show different perspectives and/or interests on the ground, which is generally useful in terms of the overall investigation. In the case of this article, we have used this information specifically to elucidate the perceptions of the actors involved in relation to the possibilities of gastronomic tourism, potentially considered as more sustainable and respectful approach to the territory.

Data Collection and Analysis Methods

Following purposive and convenience sampling, we conducted 27 in-depth interviews with key actors: chinampero producers (9), cooks and/or restaurant owners (3) who included chinampero agroecological products on the menu; university researchers related to academic projects in the Xochimilco area (4), tourism promoters and guides (3) and tourists visiting the area (8). All interviews were held in person (most of them in the research area), recorded or filmed, and manually typed. We carried out semi-structured open interviews, which allowed the researchers to prepare and analyze the subjects previously, with a wide margin of flexibility. In this way, the interviews were always open to the interviewees opinions while adhering to the research guidelines [47]. As Flick [48] points out, reliable qualitative data can be collected through these interviews, despite the difficulty inherent in open interviews in relation to the eventual comparability of the data, which is ensured by semi-structuring or related to the interaction between researchers and interviewees [49].

During the semi-structured interviews, the open themes that guided the research mainly inquired about the following: considerations about the eventual official protection of the Xochimilco canals as a heritage area; their vision of the type of tourism currently existing in Xochimilco; the production, distribution and sale of chinampero products as local products in Mexico City; the existence of a particular local gastronomy that differentiates the territory in a qualitative way, and its links to local identities; and the tourism activities related to gastronomy that are being carried out and/or can be carried out in the future in Xochimilco.

This analysis was conducted from an anthropological perspective that relies on a holistic comprehension of practices and meanings. Hence, it is relevant to note that this research has been carried out particularly from the perspective of the anthropology of food [50], considering that the methods used from the said discipline have their own perspectives, characteristics, and applications [51,52]. Therefore, we try to adopt here an open and holistic approach coming from the experience lived among the individuals [53], focusing particularly on food (production, distribution, consumption) in its broadest sense and on the phenomena related to this, such as touristic pressure or the opportunities that tourism can provide, its close environmental relationship, or the *mise en valeur* of agroecological chinampero products in the local food and gastronomic scene of Mexico City.

As Denzin points out [54], data triangulation includes matters such as investigator triangulation, which includes the use of several researchers in a study, and methodological

triangulation, which promotes the use of several data collection methods such as interviews and observations. In the case of this research, triangulation corresponded both to the diversity of researchers in the field, providing different points of view from their diverse disciplines (social anthropology, gastronomy, environmental studies), and to the use of different qualitative research methodologies (identification of key actors, in-depth interviews, ethnographic direct observation, and participant observation in the field). Qualitative triangulation was performed following the guidelines of Flick [48], to receive different perspectives from key actors in order to achieve confirmability (discursive coincidence or divergence, and on the data provided) of the findings relevant to the research object.

4. Findings

4.1. *The Tourism in Xochimilco: Between the Socioeconomic Development and the Lack of Sustainability*

The Xochimilco area can be considered to have had a particularly prominent identity since ancient times within the general context of Mexico City, which is evident in the fact of identifying as “xochimilcos” before “chilangos” (slang for Mexico’s City residents) [44]. The municipality of Xochimilco is still a culturally active delegation with a visible identity expressed towards its past, with complex and large-scale religious manifestations, a local gastronomy based on tradition, and a festive calendar that articulates various social expressions with significant historical depth and significant cultural roots.

However, in recent decades and onwards, the demographic pressure from the central areas of Mexico City toward the urban area has resulted in the invasion of the waterways, agricultural lands and chinampas in which previously there was almost only traditional agriculture. Especially since the last half of the previous century, urbanization, largely informal and often without utilities, has notably increased. As stated by Eakin et al. [44], despite the prohibitions on residential land use in the area’s protected zones, it is estimated that 25% of the area of protected wetlands is currently urbanized. Furthermore, only 17% of the chinampas are active today.

Considering this background, water quality has become an increasingly pressing concern. Despite investment from the city government, due to the plans of the federal government (such as the Xochimilco Ecological Rescue Plan (PREX, in Spanish), already by the end of the 1980s) and international attention, the wetland environment is in rapid decline. Perceptions of environmental degradation are important and growing among the residents of the area [55] and of Mexico City in general. The political context is one of uncertainty, apathy, and anguish, with much debate and little cohesion about the best way to move forward [44].

This entire background of urban pressure has also been accompanied by a productive intensification of agriculture, with a significant increase in the use of agrochemicals to increase production, as well as a significant increase in touristic activity, the influx of which has grown in a sustained manner over time.

Most of the visitors to Xochimilco are locals, that is, residents of Mexico City who come to Xochimilco for the weekend. However, although these tourists mainly come from the Mexican capital, locals are counting on an increasing presence of visitors from other states of the country and, increasingly, foreign tourists. In this regard, its designation as a World Heritage Site by UNESCO in 1987 and its inscription as a Globally Important Agricultural Heritage System (GIAHS) by the FAO in 2018 have had a certain pull effect that has increased demand and pressure. As an interviewee commented, the patrimonial speech has been appropriated by the local actors themselves: “*We are heritage, and those people (tourists) are interested in that*”.

As there are mainly (but not only) local tourists coming from Mexico City and neighboring states, with visits concentrated mainly on holidays and weekends, there are no reliable official data (INEGI, DATATUR, SECTUR. . .) on how many people visit the Xochimilco canals annually. There are no disaggregated data produced by the different local mayor’s offices (*alcaldías*). Nevertheless, various press reports from different sources point out

how both overnight stays in the Xochimilco mayor's office and tourist visits to the area have progressively increased in the last decade (except for the inevitable period of the pandemic lockdown).

Therefore, local, national, and international tourists visit the waterways of Xochimilco throughout the year to navigate, eat, and drink in the *trajineras* decorated with bright colors, which today form an unavoidable part of the lake landscape and the leisure of the City of Mexico. As highlighted by one of the promotional pages of these boats as a tourist product:

We know that when tourists travel to Mexico City, the first places they will hear about are:

Zócalo (downtown's main square), the cathedral, Chapultepec's Castle, the Museum of Anthropology and of course the trajineras. Although it may not seem like it, the trajineras are one of the most visited places in the city, they have different activities within the waterways and a history that if you want to get to know about, it is recommended that you hire the services of a tour guide, do not worry if you have companions that do not speak Spanish since these guides usually speak English. When visiting this beautiful place, the first thing you will notice is the beautiful colors with which the trajineras are decorated, the excellent atmosphere and the beauty of the place will put you under a spell (from the web: Xochimilco, a place to visit while you are in Mexico City (<https://trajinerasxochimilco.info/2021/05/21/xochimilco-un-lugar-emblematico-para-el-turismo-dentro-de-la-ciudad-de-mexico/> Accessed on 14 September 2023). The text has been translated as accurately as possible from that literally posted on the website).

According to Revollo-Fernández [56], more than 1,200,000 local, national, and foreign tourists annually visited the Xochimilco's waterways in 2012. Currently, in a scenario where the restrictions of the COVID-19 pandemic have been constantly decreasing and there has been a return to previous activities, it is estimated that there are already around two million visitors to the area [57]. As Paez [45] points out, the tourist offerings of Xochimilco are mainly provided by private initiatives. Among them are the owners of the popular *trajineras* of the Xochimilco's waterways.

4.2. Tourism and Water Pollution

Xochimilco has eleven piers, of which Nativitas, Zacapa and Flores Nativitas are, along with Cuemanco, considered the most traditional and those with the greatest infrastructure, and restaurants, craft sales and parking can be readily found in this area. One of our interviewees, a tourist promoter, pointed out that large piers, such as the one in Zacapa, have around 80 *trajineras*. It is estimated that the total number of boats among all piers exceeds 500.

As one of our chinampero interviewees commented: "Before, the chinampería of no motorboats was created here." However, today:

"The world of boats, more than anything, right? A world of motors (. . .) According to the Delegation (it) takes care; It is a protected site, as I understand. But then what's the deal? If it is a protected site, there must be even some signs that they should not speed, right? (. . .) Hey, slow down, because those people are in a boat, which it's very light (. . .) that shouldn't happen, right?"

The tourists that the *trajineras* host, especially on weekends, are known for being celebratory tourists (involving "drunkenness", as some of the people interviewed affirm) in which groups of people, mostly young, board the *trajineras* with food, alcoholic beverages, and music equipment. The offer of these products and services is also provided by the same guides as complementary services to round off the festive character of the visit. In the words of a farmer and fisherman chinampero: "Well, it's a damn mess (. . .) All the time it's just partying. They just drink and. . . (. . .)".

It is interesting that, for the people of the local community, tourism is considered a significant source of social distortion and waste pollution in the wetland due to the lack

of environmental awareness of the visitors who are allowed to “do anything for a few pesos” [58]. As a chinampero from the area, told us:

“There goes their trash, their black trash bag, and there it is floating. So, the locals, we, then try to take it out and do what we can, but. . . (..) Well, in this situation, sometimes, we can’t do much. . . We try to take care of the place because we see that here there is peace, here you come to relax and you come to take away your hunger, delicious, what you can eat here, the most delicious things you can eat, for me and for my family”.

But he adds:

“All their garbage goes to the waterway. There it goes; into the water (..) They just don’t care (..)”.

About the *trajineras* and boats, he says:

“For example, they, because it’s their job, they just rent those boats, but. . . (..) I’m washing my vegetables, and what does a wave do when you throw in your vegetables, lettuce, so you can rinse them from the ground (..), and then what happens when a wave passes by, what does the wave leave you? All vegetables crushed, all muddy, and no longer useful. They have a good time because they are earning, just from their trip, a thousand pesos, and I would like to earn those thousand pesos just so I’m not here working, but you can’t. Everything is valid (..) I don’t say anything, just because I respect. I respect”.

The same interviewee also points out to us the “absence of public authority”, such as police or security guards who protect or watch over the conservation of the site.

This perspective contrasts with that of the tourist promoters, who emphasize their own vigilance, both regarding the safety of the passengers as well as the fact that nothing is thrown into the water so the waterway is not polluted: “It’s our livelihood, dude. We are not going to let it go to hell (..)”. However, it is also stated on some other occasions that: “One does not have a thousand eyes, well (..)”.

A fact to highlight is the very perception, from the locals, that tourism is an evil that must be suffered since it “feeds many families” and, finally, it is one more element (but not the most important) that influences the contamination of the waterways. An agroecological chinampero from Xochimilco told us “It is not what is killing the water”. Pollution “does not come from the tourist”; it comes from “the sewage of the people (..), from the agrochemicals”, from the “dumps that are unregulated”; “Of all of us, well (..)”.

Regarding the environmental recovery of the local ecosystem, some higher education institutions have promoted advocacy actions and practical intervention in the area, such as the restoration of the water quality of the Xochimilco waterways or the recovery of the chinampero system as a means of linking producers and consumers [10,46]. In this regard, the establishment of what has been called “chinampa-refuge” is significant at a productive level.

The model, called the “chinampa-refuge”, was designed to maintain traditional agricultural practices in the territory but very specifically to promote ecological recovery and biodiversity in the canals that surround the chinampas of Xochimilco. This action model was primarily realized by promoting collaborative work and co-creation with the producers involved to use traditional agricultural and environmental knowledge and, from this, apply rustic filters in the channels. These biological filters, in addition to allowing water filtration, which significantly improves its quality, are also applied to keep invasive exotic fish species (especially tilapia), predators of local species and the natural habitat of the chinampas out of the area. In this way, and at the system level, it contributes to reestablishing both the quality of the water and the ecological functionality of the canals [10]. However, this system still affects very few chinampas and is restricted to a very limited area of the common area. Work is slow, and for the most part, there is still “everything to do”.

According to Rubio, Figueroa, and Zambrano [58], for the local population, the most important social-ecological problems are as follows: inadequate government management, which is perceived as the main cause of all other problems; water pollution, which is associated with garbage being dumped in the waterways and wastewater from irregular settlements; the loss of agricultural production, which is caused by aspects such as the lack of markets or the negative perception of agriculture and that inhibits the formation of new generations of local agriculture and the expansion of rented chinampas for tourism or soccer fields; the loss of lake identity caused by migration; the professionalization of younger generations; and the failure of conservation projects, which is attributed to the misallocation of subsidies and projects related to political corruption, which, in turn, worsens local inequalities and conflicts within the community because they “always benefit the same groups of people” [58].

On the other hand, for government representatives and NGOs, the most prominent social-ecological problems were as follows: urbanization as a process is associated with a lack of institutional coordination to regulate ownership of the land for chinampas; the loss of agriculture caused by the insufficient earnings of the local producers and the expansion of soccer fields as a more lucrative activity; water pollution linked to irregular settlements, the use of agrochemicals from greenhouses, and garbage dumps; and the failure of conservation projects, which they attributed to insufficient financial resources that inhibit tangible results, as well as the challenges derived from working with what they call “a conflictive community” [58].

5. Social Change and the Recovery of Environment in Xochimilco: Between Agriculture and Leisure

A constant in the statements of our interviewees is the fact that they mention that the chinampas are being abandoned and that young people are no longer interested in working in agriculture:

“More than anything, the old people from here, those who were, already. . . , who worked the fields, no longer exist. It’s over. We are other generations. The young ones what do they do? . . . Well, no. . . (. . .)”

As Rubio, Figueroa, and Zambrano [58] highlight again in relation to the social changes that the Xochimilco area is undergoing, one of the most important changes is the fact that young people are no longer interested in traditional productive activities. Those who have been able to afford to give their children a higher education do not envision them going back to work in the fields, partly because it is considered hard and poorly paid work, and partly also because there is a generally negative perception of agriculture as a socially inferior and “out of date” occupation.

Fishermen and farmers, most of whom admit enjoying their work, often respond negatively to the idea of their children working in the same activity since they would like them to “have higher aspirations for their lives”. They also point out that young people no longer care about the chinampas and prefer to work where they can own their free time, unlike agriculture, which is a full-time activity [58].

As one of our chinampero interviewees stated:

“The young ones, what do they do? (. . .) When here. . . Working right now like me, my son, how much can I pay my son? 150 or 200 pesos, when there (in the *trajineras*) they are going to pay him 800, 1000 pesos for an hour. Hey. . . And they are not going to work the hours they do here. They are going to be resting, they just must show them around (tourists), for an hour, and that’s it. So that too. . . (leads them to) not respect the place. Well, that’s an animal’s job, let others do it. I have heard them. Let the others do it. . .”

The tourism sector, linked to the *trajineras* and the transport of visitors through the waterways, is offering the local population economic possibilities that traditional activities, such as agriculture, no longer offer. The uses of the chinampas are being transformed.

They are less and less dedicated to agriculture, and more are being transformed into spaces for leisure (tourist visits, places to eat and drink, or celebratory meetings with friends or family...) or are being rented as soccer fields. These are relatively “new” land uses, meaning that locals “Make much more” and that “you have to work less”.

Therefore, little by little, and as our interviewees mention, agricultural activities are being abandoned in favor of other more lucrative activities, among which those related to tourism and leisure occupy an increasingly relevant place. As one of our chinampero interviewees stated: “Everything is moving very fast (...) I believe that this (agriculture) is not going to continue.”

6. To a Gastronomic Enhancement of Xochimilco Local and Sustainable Products? Gastronomic Sustainable Tourism as a Potential Alternative

The tourism that exists today in Xochimilco is mainly local, from Mexico City and, to a lesser extent, from the State of Mexico. It is partly family tourism, although with a significant volume of groups of visitors, mainly young people, who seek to party and celebrate (“the drunkenness”, as some of our interviewees define it) on the trajineras and on their routes through the waterways, but also in the chinampas rented during the day for this purpose.

The conflicting interests between the pressure of tourism and the abandonment of agricultural activity in the chinampas are well known and are quickly revealed when addressing the issue with the interviewees, especially with those residents who are engaged in agri-food production (“What do we do, then?”). However, the enhancement of local agri-food products from the chinampas that has been carried out in recent years, as well as the traditional cuisine of Xochimilco, is moving very slowly, although in a way that seems firm.

As Pasquier and Monachon [2] pointed out, there is a general idea about the little relevance of the agricultural sector in Mexico City. However, if it were possible to consolidate the transition to agroecology, which many producers have already started using their own means, and substantially expand its extension in the territory, this area would have significant potential for the construction of more sustainable food alternatives in the city. A strategy like this could generate positive synergies both with the care and conservation of urban protected land areas and with the food supply for the city.

In the case of Xochimilco, we can find the slow but progressive implementation of the “chinampa-refuge” model, as well as aspects like the collective action generated by different civil society actors. Those actors promote environmental recovery activities where conservation tourism, as an ecological awareness strategy, together with a certain recovery in traditional agroecological practices and a greater ecological sustainability of the waterways around the chinampas. By promoting collaborative work with chinampero producers, the original food web will be restored, improving the water quality of the specific site as well as the ecological functionality of the system [10]. They are also obtaining good and safe quality local products whose enhancement is an important challenge today within the gastronomic scene of Mexico City [13].

As one of our interviewees, a chef at a well-known restaurant in Mexico City, stated:

“They are local products, from Mexico City itself (...) that are unique, that you will probably not always find (...) That are only seasonal (...) Products that are carefully grown, that we can know from the voice of the farmer himself, they do not have any pesticide, or that the seed was well taken care of... That kind of thing, right? Of course, sometimes, well, you won’t find the perfection in that product that you can find with another supplier, nor perhaps standardization in size or shape... or in terms of seasonality, which we know will be limited, but (you know) that it will be of good quality, well... A good product, so”.

However, this system only affects a few chinampas, as it is expensive and takes time. Therefore, there is still a long way to go.

However, although the paths of environmental and socioeconomic recovery are somewhat established and some early results are beginning to be glimpsed, the way is not and cannot be, at the moment, easy. Firstly, not all the chinampas have embraced agroecological production and continue to irrigate with sewage and use large volumes of pesticides and agrochemicals in an intensified production, seeking productivity over product quality.

On the other hand, those chinamperos that have undertaken this agroecological transition are producers but not traders. Frequently, the requirements of the market are not easily met by many of them (bank account, invoices, transport. . .), and both practical and specific training is essential, such as through professional advisories, to carry out said updates [13].

Likewise, the *mise en valeur* of those products, underlining their potential advantages (locality, sustainability, identity, cultural heritage, and tradition, agroecological production, seasonality. . .) also entails a relative increase in prices, regarding production and distribution, but also its use by domestic consumers or in restaurants. All this forces those foods to remain out of the reach of broad socioeconomic strata (the lowest) of the population of the city itself: all those sections of the population that can only purchase the food based on its price and not in relation to its real or perceived quality.

7. “This Has Flavor!”: Towards New Touristic Paths for Xochimilco through Agri-Food Products?

In any case, our own interviewed producers (farmers, fishermen) and local traditional restaurant owners are also beginning to glimpse interesting crossovers related to certain types of visitors and the in situ consumption of their products in the territory of Xochimilco itself. As one of the interviewed producers (fisherman) stated during one of our interviews:

“I try to sell in Xochimilco. Yes, it has always been like that. . . (. . .) I mean, I am from Xochimilco. . . Long before our grandparents told us, well, how the charal (*Chrirostoma*, small lake fish originally from Xochimilco) was sold, how they came out with their little cans, how they sold the acociles (small lake shrimp originally from Xochimilco, like crayfish), people from all different States (. . .) not only from Xochimilco, and from other countries, they came with their plates and ate and consumed (. . .) How beautiful is it! People who (. . .) come from other countries, when they come to visit us in Xochimilco, what they want to see is a fish, they want to see them in the water, a little snake and they want to see. . . So, they consume, they want to consume the products from here”.

Certain tourists come to Xochimilco interested in and intending to consume local products in situ in the markets but also directly from the producers or in the traditional restaurants of the area. As the same interviewee explains:

“And when they try the food, what happens? They say: Hey, this has flavor! This is. . . Still juicy! It’s not dry like what I normally eat. . . Where did you get it from? Where did you. . .? How do you do it or how do you prepare it? And I tell them. . . Well, I went hunting for it! (Laughs) So, a lot of people like that (. . .). They come, and well, they are eating what comes from here”.

This interest, although it is not new, seems to have increased in recent years, especially after the agroecological transformation of certain chinampas, the organization of several producers in cooperatives or associations, and the sale of farm chinampa products in certain alternative food networks (RAA), fairs and producer’s markets in the Mexican capital. According to Cotler, more than 70% of the people involved in agri-food production in the conservation territory of Mexico City claim that they belong to some organization or movement, either a cooperative, association, foundation, or even a company [59].

These aspects seem to have resulted in a certain change (still discreet and slow, but existing) in the perspective of consumers in relation to products from the Xochimilco area. Some consumers who visit the area are potentially interested in trying the dishes and products and in purchasing them.

“Not before, but now people ask. Where can I buy these. . . lettuce, or cabbage? And how delicious are these carrots. And some already know, and they tell you: I tried that, and I want to buy some. Where are they sold?”

And not only the products but also the dishes that are prepared with them. As this traditional cook from Xochimilco and owner of a well-known restaurant told us:

“The traditional cuisine in Xochimilco is based on the products that are in the chinampa. In the chinampa we find a variety of vegetables. Among them are the quelites (vegetables), which are part of the traditional lacustrine cuisine in Mexico City. We, through generations (in my case there are already five generations, and I already included my granddaughter), we continue to prepare traditional dishes (. . .) based on these vegetables (. . .): romeritos, green pipian sauce, cow’s tongue plant (. . .) We can continue expanding (. . .) so many dishes come to mind. . . The traditional cuisine of Xochimilco is as extensive as the extensive territory that we still have and that we want to preserve”.

And as an interviewee, a visitor from Mexico City, told us in relation to this same restaurant:

“For those who come to visit Xochimilco and have already done their canoe ride at the Nativitas pier, it is the place to go”.

And later, he added:

“The traditional *romeritos*, *quelites*, cactus salads. . . It’s hard to say which dish is more delicious. It’s the place to taste the true traditional Mexican food from the chinampas. In addition, it integrates among its suppliers, local producers in the area and organic producers. It’s wonderful”.

The fact that the area has been inscribed as a World Heritage Site by UNESCO and highlighted as GIAHS by the FAO may also have its influence. In this regard, we have that for World Heritage cities, culinary heritage can be a differentiating factor (those elements that do not occur elsewhere and that cause that place to be chosen by visitors) in choosing a destination. Therefore, as highlighted by Hernández-Rojas et al. [60], satisfaction with traditional cuisine has a more important effect on loyalty than satisfaction with the destination itself, so making the traditional gastronomy of a World Heritage City a fundamental factor attracts tourists and fosters repeat visits. Likewise, following the same authors, the importance of gastronomic tradition has been shown to be effective in terms of satisfaction with traditional restaurants. This fact seems to confirm the role of tourism and gastronomy in maintaining local cuisine through traditional gastronomy restaurants (and we can add local productions here), especially in World Heritage Cities. As previously stated regarding the statement of one of our interviewees: “We are heritage, and that is of interest to those people (tourists)”.

8. Conclusions

Throughout this article, we have highlighted certain aspects that lead us to reflect on the relationships between local peri-urban agroecological productions in Mexico City and some initiatives carried out to value chinampero products from the Xochimilco area, and all this in conjunction with certain distorting aspects that affect the territory and that still continue to be major obstacles for producers but also for residents of the area in general.

Among these factors, and even if the influence of the climatic conditions seems to be not very significant at the moment from the perspective of the people interviewed, an important fact is that tourist pressure, which, although it is not considered as incisive as others (demographic and residential pressure mainly irregular, water pollution, landfills. . .), represents a strong element that imposes its idiosyncrasies both on the environment (contribution to water pollution, mainly with solid discharges) and on the existing social structure (abandonment of agri-food production and dedication to the tourism sector, better paid and

with less dedication) or the change in land use (tourist and festive use of the chinampas, turning them into leisure and sports-soccer fields. . .) [13].

In recent years, particularly, a real social, environmental, and productive change has been observed among the agri-food producers of the chinampas. We have witnessed key aspects of transformation, such as the chinampas-refuge project, the cleaning of the waters, recovering fauna and flora, the obtaining of local, clean, and sustainable productions, an incipient transition towards agroecology, the establishment of alternative distribution networks and of new socioeconomic channels for commercialization in Mexico City, or the enhancement of the chinampero products. These aspects seem to be marking new ways of production, but also new visions from the perspective and the perception of consumers, who in some cases are beginning to change their negative visions of this area of the city and where tourism and the new ways of exercising it, seem to be helping these initiatives (as the self-perception of those focal actors interviewed in this research seems to confirm).

Xochimilco's agroecological chinampero products are locally grown in a sustainable way in a remarkable landscape setting, following ancestral production models inscribed by UNESCO and FAO as a part of World Heritage and as unique productive systems of great value (GIAHS). All these aspects are conducive to being able to speak of a type of visitor or tourist who, beyond the typical *trajinera* excursions through the waterways and beyond the party and celebrations, may be interested in traditional gastronomic products and specialties from the area. Visitors, mostly coming from Mexico City, although not exclusively—as one of our interviewees told us—can also come from other states, or from abroad and who already know the local produce of Xochimilco in some way (through alternative food networks, producer markets and fairs, restaurants. . .) will begin to consider these products as sustainable and of quality. On the other hand, the role of World Heritage linked to the agroecological and gastronomic production of the chinampas and the local traditional cuisine can also play a role in attracting another type of more cultural-based tourism and even in some incipient loyalty to it.

It is true that we cannot dare to speak (yet) of gastronomic tourism, but of certain dynamics that can favor it. Nor can we go much further than the signs of change that seem to be taking place in the area. The image of the ecological agri-food products from Xochimilco in Mexico City still has room for improvement, and the agroecological productions of the chinampas-refuge are still little known, in addition to being more expensive in general than the rest of the productions available on the market.

On the other hand, the image of drunken, festive, and weekend tourism also greatly influences the vision of the area, and although it is not an impediment to the arrival of other types of tourism, more interested in the products and traditional and local dishes and more culturally based, it is indeed a certain burden and an obstacle to new approaches to the area, from new perspectives. In some cases, and through contributing to poverty alleviation, tourism as an increasingly growing economic sector thrives through the available resources in the environmental, physical and cultural aspects of humankind [61,62].

Despite this, some changes are already being observed. The increase in the presence of alternative food networks and, with them, that of Xochimilco agroecological producers in Mexico City, in addition to producer markets, restaurants, and other spaces, that make local products from conservation soils in peri-urban areas. In the specific case of Xochimilco, and as a highly visited space from the city, the appearance and/or consolidation of a certain type of tourism, more aware of conservation, care, and locality of products, with its quality and sustainability, may end up having, in the medium and long term, a certain role in the transformation of the environment. This is a role that may end up being significant in establishing the necessary sensibility to create links, each time closer, between producers and consumers.

Author Contributions: Conceptualization, F.-X.M., J.A.V.-M. and M.C.; formal analysis, F.-X.M., J.A.V.-M., M.C. and A.J.-S.; writing, original draft preparation, F.-X.M., J.A.V.-M., M.C. and A.J.-S.; writing, review and editing, F.-X.M., J.A.V.-M., M.C. and A.J.-S.; All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Research Ethics Committee) of the Universidad del Claustro de Sor Juana (protocol code CUCSJ/FF20221, approved: 19 October 2022).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data is unavailable due to privacy and ethical restrictions.

Conflicts of Interest: The authors declare no conflict of interest.

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