

Social Relations, Property and 'Peripheral' Informal Settlement: The Case of Ampliación San Marcos, Mexico City

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[Paper first received, August 2007; in final form, March 2009]

Abstract

This article explores the complexities of informal urbanisation at the metropolitan periphery of Mexico City through a case study of Ampliación San Marcos, a former agricultural area on the city's south-eastern periphery. While the physical annexation of small towns and their environs is a common feature of Mexico City's growth, the settlement of Ampliación San Marcos is more accurately described as a two-pronged process involving the extension of a nearby pre-Hispanic town and the expansion of Mexico City itself. The case study shows that the rural periphery of Mexico City is no *tabula rasa* upon which urban growth simply 'takes place', rather, settlement processes are influenced by longstanding *in situ* social relations and practices related to property. The paper highlights the importance of considering the relationships among social relations, property and informal settlement for understanding the complexity of metropolitan growth and change in large cities such as Mexico City.

1. Introduction

It is now an oft-cited adage that we have entered the first 'urban century' and that for the first time in human history, the number of people living in urban areas will soon outnumber those living in rural ones. Over the next 30 years, the current global urban

population of 3.2 billion will increase by another 2 billion, reaching its expected apogee of approximately 10 billion in 2050 (Davis, 2004). Almost all of this urban growth will be accommodated in the so-called developing world where many of the largest and fastest-growing cities in the world are now located (UN-HABITAT, 2003; World Bank, 2000).

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Notably, most of this growth will take place in informal settlements in peripheral urban areas (World Bank 2000), as part of what Mike Davis (2004, p. 14) has termed “slum sprawl”. In this way, the ‘first urban century’ will largely be lived in thousands of informally settled communities in cities across the developing world, produced through the efforts of the urban poor seeking to access affordable land and build their own housing on an incremental basis over time.

These important urban trends are reflected in international urban literature which refers not only to the increasing urbanisation of human settlement (Cohen, 2004; Montgomery *et al.*, 2003), but also focuses on the growing roster of the world’s ‘mega-cities’ and their immense size and expansive metropolitan forms (see for example, Simmonds and Hack 2000). Indeed, many mega-cities now exceed the conventional definitional threshold of 10 million or more inhabitants.¹ Concomitantly, a new urban lexicon is emerging to describe the unprecedented size of the world’s largest cities, with terms like “hyper-city” (Davis, 2006, p. 5) now used to refer to cities with 20 million or more inhabitants.

Given this context, it is not surprising to find that the size and form of the world’s largest cities assume such prominence in the urban literature, contributing valuable insights into the broad contours of urban growth in the world’s largest cities. At the same time, however, it remains important to study the unique social and spatial factors influencing urban growth at the local level. In this regard, community-based case studies serve a complementary role in the literature by providing a nuanced understanding of the myriad of social and spatial factors mediating urban growth patterns and processes in different mega-cities. Detailed community-based case studies represent not only a different approach to metropolitan-wide studies, but also help to deconstruct the mega-city as a kind of urban monolith that might otherwise

be emphasised by the promulgation of such terms as ‘hyper-city’.

This paper describes and analyses the settlement of Ampliación San Marcos, a former *chinampería* (an area used for cultivation, as described later) of a pre-Hispanic town on what is now the south-eastern periphery of Mexico City. Ampliación San Marcos is one of the numerous informally settled communities which comprise a significant proportion of the built-up area of the metropolitan zone. While the physical annexation of small towns and their environs is a relatively common characteristic of Mexico City’s territorial expansion, the settlement of Ampliación San Marcos is more accurately described as a two-pronged process involving both the extension of a nearby pre-Hispanic town and the expansion of Mexico City itself. This two-pronged process is more complex than just the territorial annexation or absorption of an outlying town into a growing mega-city. In the case of Ampliación San Marcos, a particular set of localised social relations among *nativos* (locals) related to informal modes of possessing and transferring *chinampas* land (see later) influenced the initial settlement of what is now known as Ampliación San Marcos. This case study makes an empirical contribution to Cruz’s (2001b) assertion that different property types are associated with particular kinds of informal urbanisation in Mexico City. In particular, the case study contributes to understanding informal settlement processes and patterns as they relate to *chinampas* land, a particular type of private property in Mexico. The case study also highlights that land or urban space is not simply a ‘surface’ upon which human activities or urban growth takes place. Instead, the case study underlines the importance of considering the dynamic interactions among social relations, property and informal settlement for understanding the complexity of urban growth, especially with respect to the informal settlement processes, which constitute such significant drivers of

this process. In this regard, the case study of the settlement and eventual urbanisation of Ampliación San Marcos excavates some of the social and physical complexity of informal development processes at the periphery of Mexico City.

This paper draws primarily upon research conducted in Mexico City between 2004 and 2005, including a randomly administered household survey in Ampliación San Marcos and semi-structured interviews with community residents and leaders, as well as local government officials.² Hence, the research represents a mixed-methods approach in which quantitative and qualitative data are used in complementary ways. It also incorporates some additional interview data gathered through subsequent fieldwork in Xochimilco in 2008. After a brief review of recent relevant research on urban growth and informal urbanisation focusing on large cities in Latin America, the paper provides an overview of urban growth in Mexico City, with an emphasis on the informal urbanisation processes that serve as a thematic focus of this paper. The following section outlines the municipal context for Ampliación San Marcos, an informally settled but now relatively consolidated community in Mexico City. The next section describes the settlement and consolidation of Ampliación San Marcos. The paper concludes with a discussion of the implications and conclusions drawn from the case study.

2. Mega-cities and Informal Urbanisation in Latin America

There is now a plethora of literature on mega-cities and various aspects of their development in the Latin American context (see Aguilar, 2004; Davis, 1998; Garza, 2000; Gilbert, 1996; Pezzoli, 1998; Pick and Butler, 2000; Ward, 1998). Aguilar (2004) articulates four reasons for this focus on mega-cities. First, and perhaps most obviously, mega-cities

concentrate a large number of inhabitants, often representing a significant proportion of a country's total population. Secondly, mega-cities often serve as a national hub of both economic activities and political power. Thirdly, mega-cities present considerable social and environmental challenges, such as urban poverty, traffic congestion and environmental deterioration. Finally, Aguilar (2004, p. 6) argues that this focus also stems from an interest in the emergence of new spatial forms related to the territorial expansion of mega-cities, including the transition to a more polycentric pattern of development incorporating sub-centres within an increasingly dispersed and complex metropolitan area, including its periphery.

The metropolitan peripheries of large cities in the developing world are distinguished from similar areas in more affluent countries by the prevalence of informal housing and settlement processes. In most cities of the developing world, informal settlement is not only a fundamental part of urban structure, but also a principal impetus of urban expansion at the periphery (Cruz, 2001b; Villavicencio, 1997). As highlighted by Connolly (1999) and Pezzoli (1998), this growth pattern reflects the difficulty of finding land affordable to the urban poor within the built-up urban area, combined with the availability of cheaper, less regulated lands for development on the urban periphery. It is now widely recognised that access to affordable land is particularly important for the urban poor, given that almost all affordable housing in most cities of the developing world is developed through informal housing processes in which all or part of the construction of a dwelling is built or managed by the occupant(s) over time (Gilbert and Gugler, 1992). Not surprisingly, access to land, and by default housing, is also one of the most visible struggles for space in Latin American cities (Jones, 1994) and emerged as a major focus of urban research in Mexico

beginning in the 1980s (Delgado and Perló, 2000; Schteingart, 2001).

There are now many studies of the ways in which the urban poor access land in cities of the developing world, including the various social, legal and environmental challenges associated with informal housing and settlement processes (in the Mexican context, for example, see Azuela, 1997; Cruz, 2001a and 2001b; Delgado and Perló, 2000; Pezzoli, 1998; Schteingart, 2002; Varley, 2002). Over time, many informal settlements go through a process of 'consolidation' or 'regularisation', involving the improvement of land tenure security and/or housing conditions and/or access to urban services. Given the incremental nature of the informal housing process, informal settlements are commonly differentiated by the degree and quality of their overall housing consolidation and access to urban services (UN-HABITAT, 2003), or by their legal or regulatory status in terms of their adherence to the norms that regulate land, land use and urbanisation processes (Duhau and Schteingart 2002). As this literature has amply documented, the flexible nature of the informal housing development process allows low-income households to develop low-cost shelter on an incremental basis in consonance with available resources.

In the Mexican context, however, informal settlement processes are further differentiated by the complex typology of property types that exist (see later), especially at the metropolitan periphery where urban and rural areas intersect. As argued by Cruz (2001b), different property types can be associated with particular forms of informal urbanisation as each involves different social actors, institutions and arrangements in the control and settlement of land.³ To date, however, much of the existing research has focused on the role of *ejidal* land in informal urbanisation, neglecting the significance of other kinds of property as a source of affordable land for informal settlement in Mexico City (Cruz, 2001b). These

other kinds of property include, for example, private property, a heterogeneous category in Mexico which includes *chinampas* land.

As argued by Connolly and Cruz (2004), another important characteristic of the literature on large cities in Latin America is its focus on metropolitan-wide processes and, in particular, on the spatial reorganisation of economic activities and the resultant emerging metropolitan and regional forms associated with such changes (see, for example, Aguilar, 1999; Aguilar and Ward, 2003; Garza, 1999). Such a metropolitan-wide focus often fails to capture the ways in which economic restructuring is manifested unevenly in metropolitan areas such as Mexico City (Connolly and Cruz, 2004). In this regard, Connolly and Cruz emphasise instead the significance of the

continuity of rooted structures—built forms, institutions, uses and customs, spatialised human relations—instead of prioritising the inexorable impact of large-scale transformations (Connolly and Cruz, 2004, p. 446; author's translation).

In many ways, this line of argument refers to the inevitable tensions between the specific and general in social science research, but it also conveys the importance of considering historical and local context in interpreting contemporary metropolitan development patterns. In Mexico City, this context necessarily includes consideration of the various kinds of property found in and around the outlying towns and communities absorbed by the city's growth over time, such as the pre-Hispanic town of Xochimilco and part of its former *chinamperia* (now known as Ampliación San Marcos).

Connolly and Cruz also emphasise the pitfalls of trying to understand metropolitan growth processes through a conceptual framework that subjugates rural variables to urban ones. To this end, they pose the insightful question

To what extent does the analytical supremacy of urban variables hide or subordinate the presence of rural processes that may influence metropolitan processes in a differentiated manner? (Connolly and Cruz, 2004, p. 461; author's translation).

There are numerous potential examples of the conceptual subordination of the rural to the urban in analysing cities in the research and policy literature, including the depiction of peripheral metropolitan growth as only the outward expansion of the city being populated and settled by in-migrants. One such example can be found in a relatively recent publication by the Mexico City government that describes the urbanisation of Xochimilco in the following way

Xochimilco was part of the periphery of the Federal District and started to be settled by in-migrants from other states in the Republic and other zones of the capital through an urbanisation process which in many cases has occurred in an irregular way (DDF, 1994a, p. 7; author's translation).

This description clearly frames Xochimilco in terms of how it relates to Mexico City (i.e. the periphery of the Federal District), even as this report subsequently goes on to detail some of the localised spatial and social factors which served to influence the growth and eventual incorporation of this area into Mexico City. Such descriptions are consistent with, and likely to be influenced by, the conventional model of growth in Mexico City developed in the 1970s, which describes the urban structure of Mexico City in concentric rings around a central-city core following the city's historical growth pattern (Villavicencio and Durán, 1993). In accordance with this schema, Xochimilco is presently considered part of the 'third ring' of development in the metropolitan area (GDF, 2005).⁴ Such an urban-oriented perspective of metropolitan growth—focusing on internal changes to the city itself—facilitates a kind of urban solipsism that

overlooks the ways in which rural areas and local context mediate urban growth patterns to produce a highly differentiated urban periphery in cities such as Mexico City.

Although this vast body of literature has elucidated many important aspects of both metropolitan and informal settlement growth in large cities such as Mexico City, much of it has also tended to treat land, and space more broadly, as a surface upon which human activities simply take place. As argued by Massey

Space is not a 'flat' surface ... because the social relations which create it are themselves dynamic by their very nature (Massey, 1992, p. 81).

Rather than a surface on which activities take place, space is increasingly viewed by social and urban theorists as a socially constructed and dynamic concept (see for example, Brenner, 2000; Massey, 1992; Richardson and Jensen, 2003) "in which social relations are reproduced, invented, identity constructed, and power exercised or opposed" (Lefebvre, 1991; quoted in Jones, 1994, p. 1). This perspective of space also problematises the generic geography of locational co-ordinates (i.e. central, periphery) and terms (i.e. sub-centres) often found in more conventional growth models or metropolitan-wide analyses which tend to belie some of the complexity of 'peripheral' informal settlement processes at the changing metropolitan fringe.

The following case study of Ampliación San Marcos contributes to this evolving literature on the dynamic interaction between social relations and urban space in the Latin American context, especially pertaining to informal settlement, a pervasive form of urban development in Latin America and elsewhere in the developing world. Such work contributes to a better understanding of what Connolly and Cruz (2004) call the "spatialised human relations" (p. 446; author's translation) which differentiate growth patterns in the metropolitan periphery

both within and between large cities. It also responds to Rakodi's (2006) call for research which better integrates the social and physical dimensions of urban space and which "bridge[s] the gap between views of the city as either physical artefact or aspatial social phenomenon" (Rakodi, 2006, p. 312). This case study illustrates some of the ways in which land and localised social relations interact to influence the production of urban space and, more specifically, informal settlement patterns and processes. The case study underlines the nuanced nature of informal settlement processes as socially driven activities rooted in particular temporal and socio-spatial contexts. Finally, the case study provides an account of informal settlement processes in a former *chinampería*—a particular kind of private property in Mexico City—thus helping to fill a gap identified in the existing literature by Cruz (2001b).

3. Metropolitan Mexico City: Complexity in the Mega-city

The Latin American region is not only the most urbanised in the developing world (IADB, 2002), but is also distinguished by the size of its largest cities, with two of the world's three largest cities in São Paulo and Mexico City (UNCHS, 1996; Gilbert, 1996). Of these, Mexico City is one of the world's best-known mega-cities. Over time, the city's centrality in national development has been accentuated by its longstanding role as the seat of a highly centralised national government and the concentration of many of the country's key governmental, educational, health, cultural and banking institutions in the capital city (Schteingart 1988). As Connolly (2003, p. 2) wryly points out, "Mexico—land of the *Mexica*—takes its name from its capital rather than vice versa". With a population of approximately 19.2 million, Mexico City is the largest city in the developing world (SEDESOL *et al.*, 2007). Mexico City's population grew most rapidly between 1950 and 1970, when its

population more than doubled in only 20 years. While growth rates slowed in the early 1980s, they continued—and continue—at a significant pace in a number of peripheral municipalities, including those in the southern part of the Federal District (including the municipality of Xochimilco) and an increasing number of conurbated municipalities in the adjacent State of Mexico (Garza, 2000).⁵ In addition to its large population, the metropolitan zone also covers an expansive urban area incorporating 16 municipalities in the Federal District, 59 municipalities in the State of Mexico and one municipality in the State of Hidalgo (SEDESOL *et al.*, 2007) (see Figure 1). Over time, the outward spread of the city's population and economic activities has produced a polycentric urban form incorporating existing towns and rural areas in a complex metropolitan structure expanding along major transport corridors towards nearby secondary cities (Aguilar, 1999; Aguilar and Ward, 2003; Garza, 1999).⁶

Equally as impressive as its renowned size is the fact that much of Mexico City is self-built through the disparate efforts of mostly low-income households who have struggled to access land and build their own homes with meagre resources. An estimated 60 per cent of Mexico City residents live in informal settlements (Pezzoli, 1998). And, while informal settlement is clearly both an extensive and pervasive phenomenon that represents a principal driver of urban expansion (Cruz, 2001b; Villavicencio, 1997), this 'slum sprawl' is also differentiated at the local level. Far from being some kind of urban monolith, however, contemporary Mexico City is comprised of an intricate amalgam of incipient, consolidating and consolidated informal settlements/communities woven together with formally planned residential and non-residential areas and colonial and outlying pre-Hispanic towns in the metropolitan area. There are 117 *pueblos* (towns) within the Federal District and 14 *pueblos* within Xochimilco alone (Mora, 2008a). As will be described, the settlement and eventual

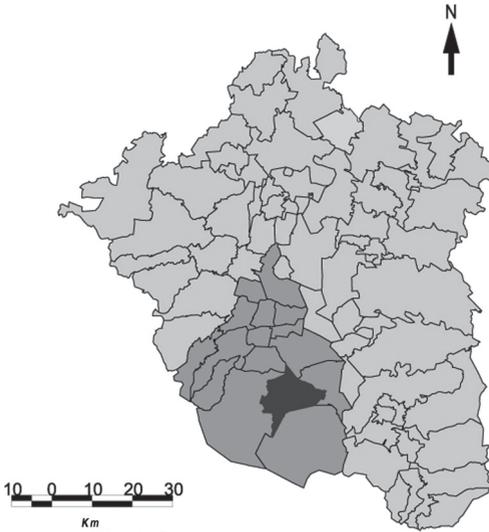


Figure 1. Mexico City, 2005. Elaborated by Oscar Iván Godínez Guzmán, UAM-Azcapotzalco.

Note: This map depicts the municipalities included in the Metropolitan Zone of the Valley of Mexico (ZMCM) which currently incorporates 16 municipalities in the Federal District, 59 municipalities in the State of Mexico and one municipality in the State of Hidalgo. In its entirety, the map includes the Federal District and the States of Mexico and Hidalgo. Within this metropolitan zone, the Federal District is the area with medium shading and the municipality of Xochimilco (where the case study community of Ampliación San Marcos is found) is the area with the darkest shading.

urbanisation of Ampliación San Marcos—a former *chinampería* of a pre-Hispanic town in Xochimilco—is one case study that contributes to the understanding of this complexity.

4. Xochimilco

4.1 Historical Background

Ampliación San Marcos is located in Xochimilco, one of the fastest-growing municipalities in the south-eastern part of the Federal

District (see Figure 2). Xochimilco is situated in the city's 'third ring' of development and within the ambit of the Federal District's poor south-eastern and eastern sections. Some of the first settlements in the Valley of Mexico were located in Xochimilco because of their access to freshwater nearby (Vidrio and Ávila, 2000). The municipality takes its name from the pre-Hispanic *pueblo* established on the banks of Lake Xochimilco in the 10th century (Legorreta, 2004), one of the five lakes in the Valley of Mexico at the time (Rojas, 2004).⁷ 'Xochimilco' is a *náhuatl* word which means "in the cultivated land of flowers" (*en el terreno cultivado de flores*) (Mora, 2008a, p. 33), a reference to the unique, human-made agricultural system known as *chinampas* used for cultivation purposes. Today, the existing urbanisation pattern of Xochimilco extends primarily from west to east across the municipality, merging the pre-Hispanic *pueblo* of Xochimilco with a number of other towns constructed along the historical edge of the former Lake Xochimilco into a relatively contiguous urbanised area, as well as extending into the remaining *chinampas* zone adjacent to these *pueblos*.⁸ Of the 14 *pueblos* in Xochimilco, the pre-Hispanic *pueblo* of Xochimilco remains the largest and most important within the municipality.⁹

Although the *Xochimilcas* were not the first to cultivate *chinampas*, they helped to refine and improve this particular agricultural technology (Aréchiga, 2004). *Chinampas* are constructed from organic materials into a rectangular form that is usually 10 to 12 metres wide and 100 to 120 metres long (Genovevo, 2008).¹⁰ The tall and slender *ahuejote* tree is planted around the edges of the *chinampas* to provide stability while also allowing sunlight to pass directly to the crops (Rojas, 2004). The *chinampas* are delimited by canals which allow for year-round irrigation and cultivation, as well as the transport of agricultural produce from the *chinampas* to nearby markets. Although more limited in scope now, an extensive system of canals once existed



Figure 2. Location of Ampliación San Marcos, Xochimilco. Elaborated by Oscar Iván Godínez Guzmán, UAM-Azcapotzalco and Adele Michon, Carleton University.

to transport agricultural produce from what is now Xochimilco to central-city markets, such as the *Canal de la Viga*, built in 1430 to connect Xochimilco with the 'Aztec' capital of Tenochtitlan (now downtown Mexico City).¹¹

As human-made areas for cultivation, the *chinampas* represent an ingenious adaptation which allowed for the expansion of the amount of cultivable land in the once-lacustrine Valley of Mexico. In Xochimilco, the *chinampas* were constructed in the low-lying, swampy parts of Lake Xochimilco (Genovevo, 2008). Moreover, *chinampas* were remarkably productive agricultural areas used to grow a wide variety of vegetables, herbs and flowers, yielding up to three crops per year (UNESCO, 2006). Up until the 1950s,

chinampas could be found in several parts of Mexico City, including the municipalities of Iztacalco, Iztapalapa, Tláhuac and Xochimilco (Pezzoli, 1998). Today, the *chinampas* remain only in the latter two municipalities, with Xochimilco containing the largest remaining *chinampas* zone. In this way, the insatiable demand for land for housing in Mexico City and the resultant infilling and paving-over of a once lacustrine environment has subsumed not only agricultural land, but also a "conception of the city: the lacustrine city against the terrestrial city of the Spanish" (Duffetel, 1993, p. 39; author's translation).

Encompassing unique cultivation practices in a millennium-old landscape, the *chinampas* zone of Xochimilco was



Figure 3. Remaining *chinampas*, Conservation Zone, Xochimilco.
Source: Author, 2004.

designated a World Heritage Site by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in 1987 (see Figure 3).¹² In 1989, the federal government issued the first ecological restoration plan for the area, which was followed in 1992 by a revised plan which expropriated approximately 2400 acres of the remaining *chinampas* zone to establish a conservation area to preserve this unique cultural landscape.¹³ These measures have slowed, but not prevented, the denigration and/or urbanisation of the remaining *chinampas*. Now under the jurisdiction of the Mexico City government, a management programme for the area was developed in 2006 (DGCORENADER, 2006).¹⁴ Before its settlement and eventual urbanisation, the area now known as Ampliación San Marcos was part of this much

larger *chinampas* zone. Its initial settlement, however, pre-dates the designation of the UNESCO World Heritage Site.

4.2 Property Types in Xochimilco

The Mexican Constitution defines three types of property: federal or public land, communal and *ejidal* lands, and private property. While federal or public lands are owned by the state, communal and *ejidal* lands represent a particular form of land tenure (communal land or social property) enshrined in Article 27 of the post-revolution Constitution of 1917 (Duhau and Schteingart, 2002). Specifically, Article 27 stipulated that these lands could be used in perpetuity for agriculture, but could not be sold, rented or mortgaged (Duhau and Schteingart, 2002).¹⁵ The category of private property in the Constitution is linked to land reform policies

adopted in the post-revolutionary period that sought to dismantle the large landholdings contained in *haciendas* through the creation of small properties (*pequeñas propiedades*) (Cruz, 2001a). Although private property is represented as one category in the Constitution, in reality there is considerable internal variability not accounted for in its Constitutional definition (Cruz, 2001a). Among this complex internal typology of private property, *chinampas* are generally considered town properties (*propiedades de los pueblos*), a type of property dating back to the colonial era and linked to the imposition of particular property regimes for indigenous peoples separate from those established for the Spanish colonisers (Cruz, 2001a, 2001b). As previously observed by other authors (Canabal *et al.*, 1992; Cruz, 2001a), the *chinampas* do not possess a clear land tenure situation. For the purposes of this article, however, it is important to note that the *chinampas* pre-date the Spanish conquest and have been managed over generations based on social traditions among community members of pre-Hispanic *pueblos* such as Xochimilco (Cruz, 2001a). Traditionally, *chinampas* lands were passed on among *nativos* by word-of-mouth or through private contracts (*contratos de compra-venta*). As a result, the transmission of *chinampas* land among family members or to others was not accompanied by legal documents (Cruz, 2001b; DDF, 1994a). As elaborated later, these informal modes of possessing and transferring *chinampas* land are therefore contingent on longstanding social relations among *nativos* which in turn have played an important role in the initial settlement process and pattern of Ampliación San Marcos. Thus, *chinampas* lands are distinct from other forms of private property as defined in the Constitution in terms of their history, origins and the importance of longstanding social relations in managing this particular kind of 'private property'.

Contemporary Xochimilco contains all three kinds of property identified in the

Mexican Constitution, the origins of which are linked to the complicated legacy of colonialism and post-revolution land reforms. There are informal settlements and situations of irregular land tenure in all three kinds of property in Xochimilco (DDF, 1994a), but given length constraints, this section of the paper concentrates on the *chinampas* zone of the municipality.¹⁶ The contemporary *chinampas* zone in Xochimilco contained within the conservation area—and part of the UNESCO World Heritage Site—is a combination of property types, including private property, *ejidal* land and public land belonging to the Mexico City government (DGCORENADER, 2006). As discussed, different property types have different historical antecedents. For example, the *ejidal* land in the *chinampas* zone of Xochimilco has its origins in the land redistribution carried out following the Mexican Revolution.¹⁷ The land redistribution, which led to the creation of the *Ejido* of Xochimilco, for example, benefited 1726 families through the provision of 1712 hectares (Canabal *et al.*, 1992; Romero, 2004). Somewhat ironically, however, this land was later expropriated by the federal government to create the existing conservation zone and part of the UNESCO World Heritage Site (Terrones, 2006).

Although housing is prohibited in the conservation zone, there are a considerable number of informal human settlements located within this area, especially near the historical centre of Xochimilco (GDF, 2005). This pattern not only poses challenges for agricultural production in the remaining *chinampas* and the integrity of the UNESCO World Heritage Site, but also provides evidence of Cruz's (2001a) assertion that informal settlement is often most difficult to control in private property. Between 1980 and 1990, approximately 73 per cent of urbanisation in Xochimilco took place on private property, followed by communal property (22 per cent) and

ejidal land (4 per cent) (Barbosa, 2004, p. 191).¹⁸ Given the heterogeneity of private property, it would be erroneous to consider the case study of Ampliación San Marcos as emblematic of the urbanisation of private property in Xochimilco. Rather, the case study contributes to the understanding of the urbanisation of the *chinampas*, a particular kind of private property with social, cultural and historical significance to Mexico City as a whole.

4.3 From Canoes to Cars in Twenty Years

Terrones (2006) argues that the urbanisation of Xochimilco unfolded through two fundamental processes at different junctures in the 20th century. The first represents the functional integration of Xochimilco into Mexico City as a major provider of water for central-city residents in the first half of the 20th century. The second refers to the physical integration of the municipality into the city in the latter half of the same century. In this section of the paper, the connections between the functional and physical integration of Xochimilco into Mexico City are detailed with specific reference to the urbanisation of a former *chinampería*, now known as Ampliación San Marcos. In addition, however, the case study of Ampliación San Marcos also analyses the important social dimensions of its territorial integration.

In 1914, the federal government began extracting water from local aquifers in Xochimilco to provide potable water to residents in central Mexico City (Aréchiga, 2004; Terrones, 2004, 2006). To transfer water from Xochimilco to Mexico City, the Government of Porfirio Díaz constructed a 26-kilometre aqueduct running from Xochimilco to the central city, where it was then distributed to other downtown communities (Terrones, 2006). Although this water source was mostly exhausted by the 1940s, the grand column-like ventilators of the aqueduct shadow much of the light-rail route that connects Xochimilco

and the southern part of Mexico City today—symbolically representing the functional and physical integration of Xochimilco into the city in the contemporary landscape.

By the latter half of the 1950s, the *chinampas* zone of Xochimilco began experiencing widespread desiccation (Aréchiga, 2004; Terrones, 2006). To reduce its desiccation, contaminated wastewater was pumped back into the *chinampas* zone, a process that severely disrupted the ecological balance of the area (DDF, 1994b).¹⁹ By the 1960s, the overextraction of underground water and the injection of contaminated water into the zone had greatly reduced the productivity of the *chinampas* (DDF, 1994a). The impact of these factors on agriculture is suggested by employment figures for Xochimilco: whereas approximately 38 per cent of the economically active population in the municipality was employed in the agricultural sector in 1960, this had dropped to 16 per cent by 1970 (DDF, 1994a). Clearly, this situation severely weakened an agricultural area that had been productive for a millennium, a process that was soon accelerated by other urban influences.

The physical integration of Xochimilco into the urbanised parts of the Federal District began in the 1960s. In the words of Terrones (2006, p. 7), this process was “detonated” by the expansion of urban infrastructure, housing and roads into the southern part of the city in preparation for the staging of the 1968 Olympic Games in Mexico City, including the construction of the Olympic rowing course in the *chinampas* zone (Barbosa, 2004; Terrones, 2006). Faced with declining agricultural productivity and increasing demand for housing in the municipality, *nativos* began to sell and/or settle their *chinampas* land in areas such as Ampliación San Marcos (DDF, 1994a, 1994b).

While this process began in the late 1950s, it accelerated in pace in the 1960s, as reflected in municipal growth rates (see Table 1). Between 1950 and 1970, the population of Xochimilco

Table 1. Population dynamics, Xochimilco, 1950–2000

Year	Population		Period	Average annual growth rate (percentage)	
	Xochimilco	Federal District		Xochimilco	Federal District
1950	47 082	3 050 442	—	—	—
1960	70 381	4 870 876	1950–1960	4.10	4.79
1970	116 493	6 874 165	1960–1970	5.17	3.50
1980	217 481	8 831 079	1970–1980	6.44	2.54
1990	271 151	8 235 744	1980–1990	2.23	–0.70
2000	369 787	8 605 239	1990–2000	3.15	0.44

Source: Esquivel and Villavicencio (2005), based on official census data.

more than doubled, with average annual growth rates ranging between approximately 4 per cent and 6.4 per cent. Although municipal growth rates in Xochimilco have slowed since 1970–80, they continue to exceed those of the Federal District as a whole. A personal anecdote perhaps tells of the magnitude of these changes in a more visceral manner than those captured by aggregate population figures. An elderly *nativo* (local) of Xochimilco told me that his family transported their *chinampas* harvest by canal to a central market in downtown Mexico City in the 1930s, a trip that took approximately 11 hours. In the 1950s, he made the same trip by car in an hour (personal interview). This anecdote describes a stark urban transformation: the transition from canoes to cars in 20 years.

5. The Urbanisation of a Chinampería

5.1 Overview of Ampliación San Marcos

Approximately 8000 people in 1900 households now reside in Ampliación San Marcos, an informally settled but now relatively consolidated community. My household survey results indicate that approximately 44 per cent of respondents in 2004 were either born ‘in the community’ or ‘in another community in Xochimilco’, while others were either born in another part of the Federal District

(20 per cent) or another part of the country (37 per cent) (see Table 2).²⁰ Most surveyed respondents (90 per cent) live in a *casa propia* (house) and reside on their lot with other family members (89 per cent). The majority of respondents in the community indicate that they own their housing (69 per cent), although a considerable proportion of respondents also report renting (18 per cent).²¹ Survey results also suggest that housing consolidation in Ampliación San Marcos is now relatively advanced, as reflected in the solid materials used by residents for the construction of roofs and floors.²²

Ampliación San Marcos is located in the north-western part of Xochimilco, one of the first parts of the municipality to be urbanised and integrated into an expanding Mexico City (refer back to Figure 2). Up until the 1950s, this area served as the *chinampería* of the *barrios* of San Juan and San Marcos, located in the historical centre of Xochimilco.²³ Settlement in Ampliación San Marcos began slowly in the 1950s, but increased in pace during the 1970s. As described previously, the impetus for urbanisation stemmed from a variety of external factors that reduced the agricultural viability of the *chinampas*, increased the demand for land for housing and helped to induce either the settlement of *chinampas* land by family members, or the selling of *chinampas* land to other *nativos* and/or *ajenos* (outsiders) or *fuereños* (foreigners)

Table 2. Summary of household survey results, Ampliación San Marcos ($N = 123$)^a

	<i>All respondents (percentage)</i>
<i>Birthplace</i>	
In the community	10.6
In another community, same municipality	33.3
Other municipality, Federal District	19.5
Other (other part of country, another country)	36.6
<i>Housing forms</i>	
Single-family dwelling	90.2
<i>Vecindad</i>	5.7
Apartment	4.1
<i>Who resides on lot</i>	
Family	88.6
Non-family	4.9
Family and non-family	6.5
<i>Housing tenure</i>	
Owned	69.1
Rented	17.9
Other (borrowed or shared)	13.0
<i>Legal status of property (n = 85)</i>	
Have papers	88.2
Papers in process	2.4
Don't have papers	9.4
<i>Housing consolidation</i>	
<i>Floor materials</i>	
Cement	78.0
Wood or tile	20.3
Earth	0.8
Other	0.8
<i>Roof materials</i>	
Concrete slab, brick or concrete brick	69.1
Cardboard, asbestos or metal sheets	29.3
Wood	0.8
Other	0.8
<i>Urban services</i>	
Connected to public sanitation network	99.2
Piped water in housing	70.7
Piped water on lot	28.5

^aThe sample size is 123 respondents unless otherwise noted.

Source: Household Survey, Ampliación San Marcos, 2004.

to “grow houses instead of food” (personal interview).²⁴

Part of this settlement process is also explained by internal factors, such as the population increase among *nativos* and their related search for land for housing in order to establish new households. For example, natural increase rates among *nativos* in Xochimilco accounted for a significant percentage of overall annual population growth rates in the municipality between 1970 and 1980 (DDE, 1994a). By the end of the 1980s, however, there was an increasing number of in-migrants from central municipalities in the Federal District following the 1985 earthquake in the city (DDE, 1994a). In this way, the settlement and eventual urbanisation of the *chinampas* involve a range of both internal and external factors which together help to explain the salient temporal and spatial conditions underpinning the initial settlement of Ampliación San Marcos.

Ampliación San Marcos first developed in close proximity to major roadways in the north-eastern part of the settlement and gradually progressed in a south-easterly direction towards the existing conservation zone (personal interviews).²⁵ Although it began as an incipient settlement set in a *chinampería* in the 1950s, today Ampliación San Marcos has a daycare centre, primary school, community centre, public market, several churches and a government-sponsored store where subsidised food products can be purchased by poorer families. It also includes private services, such as Internet cafes, dentist and medical offices, and other services like a local chapter of Alcoholics Anonymous. Finally, Ampliación San Marcos also has access to urban services (i.e. water, sanitation and electricity), a struggle achieved through community mobilisation (see later).²⁶ Although now mostly urbanised, it is still possible to see vestiges of the *chinampas* landscape in Ampliación San Marcos through the *ahuejote* trees tracing the edges of roads that once served as canals. In addition, canals border the easterly and southern edges of the



Figure 4. Filled-in canal, Ampliación San Marcos.

Source: Author, 2004.

community and recently filled-in canals are still visible (see Figure 4). Somewhat ironically, the rectangular, almost grid-like nature of the *chinampas* and their adjacent canals presented a template amenable to urbanisation, with the division of *chinampas* serving as blocks and the canals as roads. According to one resident, there were still working *chinampas* in parts of the community as recently as 1983.²⁷

Finally, my household survey also indicates that some *nativos* continue to use their *chinampas* land to generate income rather than selling it outright. For example, eight of the 12 survey respondents living in *vecindades* or apartment buildings in Ampliación San Marcos reported that the owner was either a *nativo* of Xochimilco or at least lived in Xochimilco.²⁸ In addition, reflecting the fact that many residents of Ampliación San

Marcos are *nativos* of Xochimilco, my household survey results show that approximately 19 per cent of respondents in the community either still own *chinampas* land, or they have other family members that do. As a land-based asset upon which food can be grown, this provides families with an additional source of support not based on wage labour alone, thus contributing to the diversity and resilience of what Moser (1998, p. 1) calls the “complex portfolio of assets” managed by lower-income households. In this context, the creation of the conservation area in Xochimilco to protect the remaining *chinampas* continues to anchor these ‘rural’ land-based assets and social relations within the changing city. At the same time, the identity of *nativos*—even those without *chinampas*—continues to be reinforced through certain social practices,

including the staging of the annual community festival, *Niñopa*, a tradition which links Ampliación San Marcos to longstanding cultural practices in Xochimilco.

5.2 Initial Settlement

The initial settlement of Ampliación San Marcos was led by *nativos* converting their *chinampas* into land used for the housing needs of family members and/or by selling off their *chinampas* parcels to other *nativos* or to outsiders moving to Xochimilco from other parts of Mexico City or from other states in the Mexican Republic (DDF 1994a). Thus, it was the *chinampas* owners who acted as the primary agents or promoters in what was essentially a socially regulated settlement process based on longstanding social relations and consensus related to *chinampas* properties. While Ampliación San Marcos shares some fundamental commonalities with other informal settlement processes (i.e. sales conducted by word-by-mouth, lack of formal documents) on other kinds of land (such as *ejidal*) in Mexico City, there are also aspects of its initial settlement process that are nuanced by the social relations that traditionally defined and controlled *chinampas* lands.

Given that few *chinampas* properties settled in Ampliación San Marcos have ever been registered, their origins are difficult to trace, at least from a formal, legal perspective (DDF 1994b).²⁹ Without such written or legal documents, the control of private property such as the *chinampas* land—including its use and transference among family members and others—was based on this social consensus among *nativos* pertaining to ‘who owned what’ at a relatively fine spatial scale relative to the dimensions of *chinampas* properties. Such social practices and tacit forms of knowledge served as the basis of a social consensus around property transactions that enabled *nativos* to hold and transfer land for generations without written documents and, ostensibly, without much conflict. These

longstanding social relations also provided for a sense of security in a number of different ways. For *nativos*, this meant that

custom makes law, and for this reason, longstanding property owners (*chinamperos*) did not see the necessity of having legal documents, given that they had possessed these lands for generations (DDF, 1994a, p. 28).

Moreover, this sense of security also existed in the case of *nativos* who acquired *chinampas* land from other *nativos* on an informal basis, as they also knew the vendors and possessed access to the same tacit knowledge regarding ‘who owned what’ which was useful in assessing the legitimacy of the sale of the *chinampas* parcel in question (personal interviews).

While the social consensus around *chinampas* properties facilitated the informal transfer of land over generations, the fact that this land in Ampliación San Marcos was inherited by family members or bought by other *nativos* for settlement purposes is also likely to have influenced the settlement process. Given that some *nativos* actually settled in the community themselves or bequeathed *chinampas* land to family members, it was not in their interest to provoke land conflicts in Ampliación San Marcos through, for example, the multiple sales of land parcels by absentee intermediaries found in other informal settlements in Mexico City. In contrast, for example, the first phase of the informal urbanisation process of the Valley of Chalco in the State of Mexico took place in mostly abandoned agricultural lands and was controlled by *fraccionadores clandestinos* (illegitimate informal developers) who engaged in multiple land sales and other conflict-inducing development practices (Cruz, 2001a).³⁰

As succinctly summarised by one outsider who purchased *chinampas* land from a *nativo* and subsequently moved from central Mexico City to Ampliación San Marcos in the early 1970s: “Word of mouth was respected by the *nativos* of Xochimilco”. This interest in

honouring their word and avoiding conflicts would have been particularly useful to outsiders, who were less likely to have access to the social ties and tacit knowledge for assessing the legitimacy of *chinampas* sales possessed by other *nativos*. On the other hand, the conflicts that were mentioned pertained to some *nativos* expressing their disapproval of *chinampas* sales for the purposes of residential development. As one *nativo* told me, such land sales reflect the actions of *chinampas* owners who “do not take care of their heritage or patrimony” (personal interview).

Not only is Ampliación San Marcos settled by a mixture of *nativos* and outsiders, but the two groups often live side-by-side within the community. This spatial configuration in Ampliación San Marcos is linked to the incremental selling and occupation of individual *chinampas* parcels to both *nativos* and outsiders over a period of time. In conducting the household survey in Ampliación San Marcos, I came across entire blocks of the community (part of an inherited *chinampas*) occupied by members of the same family, although now sub-divided into individual lots. On the other hand, the pattern of family-owned or inherited land was also dispersed, depending on inheritance and landownership patterns. For example, one resident in Ampliación San Marcos indicated that, while he lived on a plot of land inherited from his paternal grandfather, his brother lived in a different part of the community on a lot inherited from his maternal grandmother. In the end, this contributed to the socio-spatial mix between *nativos* and outsiders. It also produced a settlement pattern that differs considerably from similar processes in an *ejido*, for example, where the *ejidal* commission decides upon a larger parcel of land to sub-divide from the rest of the *ejido* and subsequently sell to outsiders (see Cruz, 2001a). In the case of Ampliación San Marcos, this mixed socio-spatial settlement pattern means that not only do *nativos* and outsiders reside in adjacent lots, but more

importantly, they also shared a common interest in improving living conditions in the community, including the struggle to obtain access to urban services (see later).

The socio-spatial integration of both *nativos* and outsiders in Ampliación San Marcos is perhaps particularly important for outsiders whose access to urban services and land tenure security has sometimes been restricted by *nativos* in other informal settlement situations in exchange for their political support in local decision-making structures (Sánchez, 2007). Despite the fact that outsiders may outnumber *nativos* in such areas over time, these controlling practices are facilitated by the spatial separation of outsiders and *nativos*, the latter of whom may live in an adjacent *pueblo* or *ejido* (see Cruz, 2001a; Sánchez, 2007). The fine-grained mix of *nativos* and outsiders in Ampliación San Marcos, however, impedes the realisation of such spatial control strategies at the local level. In fact, the leaders of the community association instrumental in the struggle for obtaining urban services and public facilities over the years in Ampliación San Marcos have been both *nativos* and outsiders (personal interviews). Moreover, residents involved in this process underline the community's solidarity in attaining urban services. As one such resident told me

The settlers were very united, they had many meetings with the municipality and pressured them when they were not doing their part (personal interview).

There is evidence to suggest that the more recent settlement processes in other *chinampas* properties adjacent to Ampliación San Marcos are now more conflictual in nature and involve the presence of organised land invaders (see Adalid, 2003; Cano, 2001; Simón, 2004). Although further research is needed to corroborate these initial hypotheses, such conflicts may be partially explained by the breakdown in the social consensus of ‘who owned what’ seen in Ampliación San

Marcos. In the early stages of the settlement of Ampliación San Marcos, the fact that the *chinampas* land was being, or at least had been recently, actively cultivated may have helped to repel the problematic intervention of intermediaries in the informal development process through the establishment of visible and active claims to land. Social and spatial conditions in both the *chinampas* zone and Xochimilco have changed considerably since Ampliación San Marcos was initially settled in the 1970s. These changes include the increasing encroachment of informal settlement in the remaining *chinampas* zone and the declining percentage of the population in Xochimilco working in agriculture, including the offspring of *chinampas*-owning *nativos*. As a result, the remaining *chinampas* zone is now more vulnerable to the cumulative impacts of informal human settlement (such as the direct discharge of wastes into the canals), an ageing *chinampero* population and a growing number of abandoned *chinampas* properties (UNESCO, 2006). These conditions may have undermined or fractured the social consensus referred to earlier, thereby weakening claims to *chinampas* lands. In turn, this has created an opportunity for organised land invaders to intervene. In closing, this suggests that the settlement of Ampliación San Marcos is not only influenced by social relations and a particular kind of private property, but also is rooted in a particular temporal and socio-spatial context which has since changed.

5.3 Consolidation and Regularisation

The first residents association in Ampliación San Marcos was formed in 1968 (DDF, 1994a). Through these associations, settlers in Ampliación San Marcos began to organise themselves and pressure the municipality of Xochimilco to grant them official permission to build their homes in the nascent settlement and to extend urban services to the community. At this time, the area which is now Ampliación San Marcos was still defined as

‘non-habitable’, housing construction was prohibited in the *chinampas* zone and the settlement was categorised as ‘irregular’ (DDF, 1994b). Some of the original settlers remember in considerable detail the community at this early stage of its settlement, including the surrounding fields of *milpa* (corn) and the mattress springs used by settlers to demarcate their lots. As described by one of the first settlers in the community

All of this neighbourhood was *chinampas*. It wasn’t permitted to build; there weren’t any streets ... no electricity; no sewerage; no water. The streets were canals (personal interviews).

To obtain official permission for residential construction in this former *chinamperia*, the residents demanded that the municipality rezone the area as urban land. This demand was met and, in 1983, an urban plan for the community was developed. A photocopy of the 1983 map obtained from one of the original leaders of the local neighbourhood association shows that the plan established the original block layout of Ampliación San Marcos and also provided street names. Somewhat ironically, many of these streets are named after trees, such as the *ahuejote* which would have lined the canals in the area only several years before. The map, produced by the neighbourhood association, suggested changes to the one proposed by the municipality and was eventually accepted as the official version by the municipal government (DDF, 1994a; personal interviews).

In terms of urban services, electricity was the first service to be formally extended to the community around 1973. Water and sewerage networks were next, being introduced in the community between 1980 and 1983. In all cases, residents contributed manual labour to facilitate the installation of these services (DDF 1994a). The success of these efforts is reflected in my household survey results, conducted in Ampliación San Marcos in 2004, in which most respondents reported that

they are connected to the public sanitation network (99 per cent) and have piped water in their house (70 per cent) (refer back to Table 2). In 1982, Mexican President López Portillo inaugurated the introduction of urban services as well as certain community facilities (i.e. primary school) in Ampliación San Marcos, a visit that is enshrined in a commemorative plaque still on display in the community.

With urban services in place, the community turned its attention towards fully regularising its land tenure situation in 1990. These efforts focused on the Xochimilco office of the *Dirección General de Regularización Territorial* (DGRT), the agency responsible for regularising informal settlements in private property in the Federal District. Although some *chinampas* owners presented *titulos primordiales* (colonial land documents) for their properties, most of these, if they ever existed, were lost or destroyed during the Mexico Revolution.³¹ As a result, few properties had legal antecedents in formal property registers at the beginning of the land regularisation process (DDF, 1994a). The regularisation process included a census of Ampliación San Marcos as well as the drafting of a detailed map delimiting lots, one of the more significant challenges involved in the process given the lack of legal documents in the initial or subsequent sale of *chinampas* properties (DDF, 1994a). The pre-regularisation census revealed that there were no property owners in Ampliación San Marcos with more than 5000 square metres. About 40 per cent of the lots were between 100 and 200 square metres and 13 per cent were between 50 and 100 square metres (DDF, 1994a).

Although this was not the first attempt at regularising land tenure in Ampliación San Marcos, it was the most comprehensive and legally binding. The first attempt took place in the early 1980s during the Presidency of López Portillo. In this case, participating residents received *documentos*

de inmatriculación administrativa, a document that relates to the right of possession, and not full legal property titles. Under the programme, approximately 800 settlers in Ampliación San Marcos received titles (*titulos*) in 1982–83, although almost half of these residents never finished the required paperwork to complete the process (DDF, 1994b). For many residents, prior participation in this programme proved confusing as they believed that they had already obtained their legal property titles and, as a result, some distrusted the need to pursue further legalisation of tenure (personal interviews).

As alluded to previously, *chinampas* land had been transferred by word-of-mouth for generations prior to the settlement of Ampliación San Marcos. The urbanisation of this former *chinampería* introduced, however, new complexities to traditional practices of possessing and transferring *chinampas* lands, which now included both *nativos* and outsiders. Specifically, these complexities included the increasingly diverse array of modalities for holding and transferring land among both *nativos* and outsiders, including: private contracts, verbal agreements, formal and informal wills, and no form of documentation at all (DDF, 1994a). At the time of the pre-regularisation census, many residents (22 per cent) possessed private contracts (*contratos de compraventa*) to demonstrate their possession of their respective lots, but even more residents (27 per cent) possessed no documents at all (DDF, 1994a).

To deal with the complexity of the modalities of informal land possession found in Ampliación San Marcos, the DGRT undertook a widespread expropriation of land in the community and reissued legal property titles to individual lots (DDF, 1994a, 1994b). Issuing of legal titles began in 1993, with the issuing of approximately 500 titles to residents in Ampliación San Marcos as part of President Salinas de Gortari's land regularisation programme, *Solidaridad* (1989–94).³²

These efforts were reflected in my household survey in which 88 per cent of respondents who reported owning their homes also indicated that they possessed *escrituras* (full legal titles) for their properties. In the end, the regularisation programme included 1368 lots (DDF, 1994a). Although eventually 'regularised' in this manner, the initial informality surrounding the land tenure situation of the *chinampas* contributed to their affordability for those who purchased lots (as opposed to those *nativos* who inherited their lots) and helps to explain why private property has served as a significant source of land for the housing needs of the urban poor in the Federal District.³³

Finally, this process of land regularisation in Ampliación San Marcos replaces the importance of longstanding social relations in the definition and disposition of land with a titling system that focuses on formally defined individual lots. Future land disputes in the community are likely to pivot around contested or non-existent wills within and among families. Ironically, almost a century after the post-revolution Constitution of 1917, the *chinampas* land in what is now known as Ampliación San Marcos perhaps finally 'fits' into its previously assigned category of private property.

6. Conclusions

Ampliación San Marcos was initially developed in the 1950s and 1960s on 'privately-owned' land in an irregular manner without formal documents (legal property titles), without official planning permission (not zoned for urban land use), but *with* the consent of the *chinampas* owners who bequeathed their land to family members and/or sold it to outsiders or other *nativos*. The category of real estate 'promoter' is a complex one in Mexico, involving agents of various sizes, capital endowments and rationales operating in formal and informal land and housing

development markets (García and Jiménez, 1994). The case of Ampliación San Marcos shows that the *chinampas* owners—as informal 'promoters'—pursued an integrated social and economic rationale in developing their land for housing. Among other aspects, this rationale included (and includes) the consolidation of family and social networks through proximal settlement and housing arrangements and the conversion of *chinampas* land to residential use. In addition, the case of Ampliación San Marcos illustrates why the diverse array of entrepreneurs in urban land markets

may be defined not only as businessmen, but also as all those who take advantage of a unique historical situation to make their fortunes (large and small) (Doebele, 1994, p. 49).

In this particular case, the historical situation included the incredible pressures for land for housing exerted during a period of rapid urban growth in the city and facilitated by state-led infrastructure investments related to the staging of the 1968 Olympic Games in Mexico City. Finally, although it represents a single case study, the settlement of Ampliación San Marcos helps to explain why private property has provided a major source of land accessible to the urban poor for informal settlements in Mexico City (Cruz 1997).

In a general sense, the settlement of Ampliación San Marcos is part of the southward expansion of Mexico City related to the city's period of rapid urban growth during the 1970s, much of which took place on the urban periphery. As demonstrated by this case study, however, there is a fuller and more nuanced explanation. More specifically, the settlement of Ampliación San Marcos has been a two-pronged process involving both the expansion of a pre-Hispanic *pueblo*, as well as the outward growth of the city itself involving settlers from other parts of the Federal District and migrants from other states in Mexico. The case study of Ampliación San

Marcos shows clearly that urban expansion in Mexico City is a complex social and physical process involving not only the extension of the existing built-up urban area, but also the incorporation of existing communities. In this particular case, the annexation process involved the incorporation of a pre-Hispanic *pueblo* and parts of its surrounding agricultural lands, including longstanding social practices pertaining to the control and disposition of these lands. In turn, the social relations related to *chinampas* land influenced the settlement process and pattern of Ampliación San Marcos, highlighting the dynamic relationship between social relations and the production of urban space.

This case study of Ampliación San Marcos also illustrates the dynamic interaction between urban and rural areas in peripheral urbanisation processes, thus exposing the shortcomings of analyses which focus exclusively on the limited and perhaps more conventional view that urban growth expands *into* rural or agricultural areas. As the case of Ampliación San Marcos illustrates, the rural periphery of Mexico City is no *tabula rasa* upon which urban growth ‘takes place’; rather, informal settlement processes and outcomes are shaped by existing, *in situ* social relations and property practices, even as these areas are altered by the encroachment of the city. Similarly, the description of Ampliación San Marcos as a ‘peripheral’ community within the Federal District is a bit of a misnomer which fails to encompass adequately the two-pronged nature of this informal urbanisation process, as well as the complexity of urban space or location in Mexico City. In Xochimilco, this is especially relevant from the perspective of *nativos*. While Ampliación San Marcos may be ‘peripheral’ relative to downtown Mexico City, it is clearly centrally located for many *nativos* in terms of proximity to important livelihood assets, such as *chinampas* land, social relations and networks.

In this way, the case of Ampliación San Marcos cautions against the singular reliance on static, geographical descriptors such as ‘peripheral’ and ‘central’ to represent location in such a complex socio-spatial setting as Mexico City. It also highlights the need to develop more nuanced growth models which do not simply subordinate rural areas and land to representing passive or temporary ‘surfaces’ acted upon and transformed by ‘urban’ expansion moving inexorably outwards from central areas to peripheral ones.

Notes

1. This definition of ‘mega-cities’ is from Cohen (2004, p. 29).
2. More specifically, this includes 123 randomly administered, structured household surveys in Ampliación San Marcos and 49 semi-structured interviews with local government officials and community residents and leaders.
3. For example, the federal-level Commission for the Regularisation of Land Tenure (*Comisión para la Regularización de la Tenencia de la Tierra*) manages the regularisation of communal or *ejidal* lands within the Federal District, and the city-level General Division of Territorial Regularisation (*Dirección General de Regularización Territorial*) manages the regularisation of private property (DDE, 1994a).
4. This schema is comprised of the central city of the Federal District (which includes the *delegaciones* or municipalities of Benito Juárez, Cuauhtémoc, Miguel Hidalgo and Venustiano Carranza) and three surrounding rings covering both the Federal District and the State of Mexico. Although Xochimilco was previously considered part of the second ring of development, this changed with the publication of the 2003 *Programa de Desarrollo Urbano del Distrito Federal* (Urban development programme of the Federal District). Xochimilco is now considered part of the third ring, along with Tláhuac, Milpa Alta and the conservation areas contained in the municipalities of Gustavo Madero and Iztapalapa (GDF 2005).

5. Metropolitan Mexico City is comprised of the Federal District and an increasing number of conurbated municipalities in the adjacent states of Mexico and Hidalgo. Unless otherwise specified, 'Mexico City' or the 'city' refers to the metropolitan zone. The 'Federal District' refers specifically to the part of the city contained within the Federal District boundaries. Up until the 1950s, the urbanised area of Mexico City was contained within Federal District boundaries.
6. These secondary cities include: Toluca, Cuernavaca, Pachuca, Puebla and Querétaro.
7. When the Spaniards first arrived in the Aztec capital of Tenochtitlan in 1519, there were five lakes (Xaltocan, Zumpanco, Texcoco, Chalco and Xochimilco) in the Valley of Mexico and an intricate network of dykes, canals and causeways used not only to separate fresh and salt water, but also for transport (Vidrio and Ávila, 2000).
8. This zone is found in the former lakebed of Lake Xochimilco in close proximity to the *pueblos* of Xochimilco, San Gregorio Atlapulco and San Luis Tlaxialtemalco.
9. From this point forward, 'Xochimilco' refers to the municipality, whereas the historical centre of Xochimilco is specified as such.
10. *Chinampas* is a *náhuatl* word that means 'on the rim of sticks' (*sobre el cerco de varas*) (Genovevo, 2008, p. 99).
11. Although the term 'Aztec' is perhaps most commonly known, other terms such as *Mexicas* or *Náhuas* are preferred in more specialised writings on the subject (see Matos Moctezuma, 2006). From Tenochtitlan, the *Mexicas* formed what is known as the 'triple alliance' with the neighbouring settlements of Texcoco and Tacubaya which allowed them to control other groups in the Valley of Mexico until the Spanish conquest. The *Xochimilcas*, for example, were required to pay tributes to the *Mexica* and provide labour for the realisation of public works projects (Mora, 2008b).
12. The UNESCO declaration also includes the historical centres of Mexico City and Xochimilco.
13. In current land use plans, the conservation area is referred to as a 'Natural Protected Area' (*Area Natural Protegida*). The 1989 plan (*Plan de Rescate Ecológico de Xochimilco*) expropriated 1038 hectares of the *Ejid*os of Xochimilco and San Gregorio (GDF, 2006) and was opposed by local communities for its emphasis on tourism to the exclusion of agricultural production (Garzón Lozano, 2002). The 1992 plan partially responds to these concerns, but still reflects a top-down approach that has minimised community participation. The UNESCO office in Mexico City has tried to facilitate greater local involvement, as reflected in its 2006 publication, *Xochimilco: Un Proceso de Gestión Participativa* (Xochimilco: A Process of Participative Management) (UNESCO, 2006). Community participation is also part of the 2006 Management Plan (*Programa de Manejo*) for the Natural Protected Area in the *chinampas* zone of Xochimilco (DGCORENANDER, 2006). The challenge now clearly lies in converting these intentions and plans into action. The total size of the Natural Protected Area at the time of its establishment was approximately 2657 hectares. With the disincorporation of several informal settlements from the area in 2006, the current size is approximately 2522 hectares (GDF, 2006).
14. Despite these conservation efforts, the lacustrine area of Xochimilco has decreased by an estimated 30 per cent in the past 10 years (GDF 2005) and, as recently as 2004, the area was reportedly at risk of losing its UNESCO World Heritage status (Sosa, 2004).
15. Although this changed with the reform of Article 27 in 1992.
16. For those interested in a more detailed treatment of property in Mexico, please refer to Azuela (1999) and Cruz (2001a).
17. This includes the *Ejid*os of Xochimilco and San Gregorio Atlapulco.
18. This information comes from the Mexico City Urban Observatory project carried out by the *Universidad Autónoma Metropolitana* (Azcapotzalco) and CENVI (see <http://www.ocim.azc.uam.mx>).
19. The city still pumps water into the *chinampas* zone today to avoid its desiccation, but it is now treated.

20. 'Survey results' refer to the random sample of 123 households conducted in Ampliación San Marcos in 2004. Selective survey results cited in this section of the paper are summarised in Table 2.
21. Others live in shared or borrowed dwellings, as indicated in Table 2. For comparative purposes, approximately 28.9 per cent of housing in the Federal District was rented in 2000 (Coulomb, 2006, p. 121). These figures are considerably lower for Xochimilco, with approximately 21.5 per cent of housing being rented in 2000 (Esquivel and Villavicencio, 2005, p. 7), a figure that is slightly higher than the figure (17.9 per cent) derived from my household survey. This discrepancy may be explained by the fact that some respondents were reluctant to declare the existence of rental housing in or on their lots, even when there was evidence of renting present (i.e. rental signs on gate).
22. Since 2001, housing consolidation efforts have been assisted by the implementation of a housing improvement programme targeting 'marginal' areas of the Federal District such as Ampliación San Marcos. Known as the *Programa de Mejoramiento de la Vivienda*, this programme is supported by the Government of the Federal District. It is also possible that the relatively advanced housing consolidation process observed among survey respondents in Ampliación San Marcos has been facilitated or accelerated by the income derived from the rental or sale of the *chinampas* by land-owning *nativos*. Further research is needed to corroborate this hypothesis.
23. Ampliación San Marcos, which literally means 'the extension of San Marcos', takes its name from the adjacent Barrio San Marcos.
24. Both of these words were used by *nativos* to describe non-locals in Ampliación San Marcos. Interviews suggest that the term *nativo* refers to those individuals and families in Xochimilco who can trace their ancestors back at least several generations. Interviews also suggest that the possession of a home in one of the historical *pueblos* of Xochimilco and/or the possession of agricultural land (*chinampas*, communal or *ejidal* lands) is often implicit in how a *nativo* is defined. In contrast, *fuereños* are still not considered *nativos*, even if born in the municipality. How this nomenclature will evolve over time in Xochimilco in the face of on-going in-migration and changes in landownership patterns, represents an interesting research topic.
25. This incremental development pattern is reflected in the higher levels of marginality, partially based on a lesser degree of housing consolidation, found in the south-eastern part of Ampliación San Marcos.
26. The quality of these services, however, is questionable, with considerable intra-community differences in terms of access to urban services, especially water (personal interviews).
27. What is now evident in the community is the presence of improvised 'greenhouses' or covered areas usually constructed of plastic tarpaulins in which people continue to cultivate what was once *chinampas* land, but without the surrounding canals.
28. A *vecindad* is a common form of rental housing used by the urban poor in Mexico City. INEGI (2002, p. 168) defines a *vecindad* as "housing of a fixed nature which forms part of a group of dwellings in which the occupants generally share facilities, such as water and washrooms".
29. In the case of Xochimilco, the destruction of local archives during the revolution has further exacerbated the lack of written records pertaining to landownership (Terrones, 2004).
30. The Valley of Chalco in the south-eastern part of the MCMA has been almost entirely informally urbanised on *ejidal* lands. As described by Cruz (2001a, 2001b), the intervention of intermediaries in the informal development process in Chalco was facilitated by the fact that *campesinos* had largely abandoned farming activities in the area. *Ejeditarios* later assumed control of the process, but in some cases, intermediaries continued to be involved in the sale of lands for informal settlement.
31. While some communities may still possess their *titulos primordiales* (documents issued during the colonial period) for such properties, they are rarely updated (Cruz, 2001a).

32. Although more commonly known as *Solidaridad*, the actual name of the programme was *Programa de Regularización del Suelo y Servicios* (Land and Services Regularisation Programme), under the rubric of the umbrella programme, *Programa Nacional de Solidaridad* (National Solidarity Programme). The latter programme was created in 1989 by the Salinas administration to address the situation of 300 000 irregular lots within the Federal District (DDF, 1994b).
33. For example, between 1980 and 1990, 70 per cent of the growth in the Federal District took place on private property and more than half (58 per cent) of this growth is attributable to the establishment of new informal settlements (Cruz, 1997).

Acknowledgements

This work was carried out with the aid of a grant from the Social Science and Humanities Research Council of Canada (SSHRC) and the International Development Research Centre (IDRC), Ottawa, Canada. Information on the Centre is available on the Internet at www.idrc.ca. The author gratefully acknowledges the co-operation of the residents of Ampliación San Marcos for their assistance in this research and extends special thanks to Erika Hernández Martínez and Mayra Hidalgo Flores for their assistance with the collection of the survey and interview data presented here. The author would also like to thank Richard Stren, Alana Boland, Priscilla Connolly and Edesio Fernandes and the anonymous reviewers for their helpful comments on previous drafts of this paper. The usual disclaimers apply.

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