The Role of Social Entrepreneurship in Fostering Environmental Justice for the Peri-urban Interface

Ensuring the poor's access to infrastructure for basic service provision

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List of Acronyms and Abbreviations

CFE	Federal Electricity Commission (acronym in Spanish)
COO	Chief Operating Officer
MDG	Millennium Development Goals
PUI	Peri-urban Interface
PV	Photovoltaic
RHS	Rainwater Harvesting System
SPSPs	Small-scale Private Service Providers
USD	United States Dollars
UNAM	National Autonomous University of Mexico (acronym in Spanish)

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1. INTRODUCTION

1.1 General Introduction

The twenty-first century has begun with many global challenges that are rising in magnitude as well as a number of basic human needs that remain unmet for a long share of the population in the developing world. Urban areas have become the "dominant form of habitat for humankind" (UN-Habitat 2013, p.V), nowadays they host 54 per cent of world's population and it is estimated that they will concentrate over 65 per cent by 2050 (UN 2014). Considering that the world economy has become far more unequal over the last two centuries (Lindert & Williamson 2003) and that a big proportion of present and future urban residents are going to be poor slum[1] dwellers (UNFPA 2007), urbanization represents one of the main global in social, environmental and governance terms.

A central feature of contemporary urbanization processes consists in the rapid urbanization of the peripheral areas of cities (Aguilar 2006), which is called peri-urbanization. This particular manner of urban expansion is transforming urban life and the form and functioning of cities (Seto et al. 2010), mainly in the Global South (Woltjer 2014). Peri-urban areas comprise a *continuum* of blurred boundaries between the rural and the urban, where the complex combination of both characteristics constitutes the *peri-urban interface* (PUI). This has been described by different authors (Allen 2003; McGregor et al. 2006; Marshall et al. 2009) as a dynamic and transitional zone, characterised by its heterogeneous social composition (small farmers, informal settlers, industrial entrepreneurs, high and middle class commuters) and its institutional and governmental disarticulation.

The current global wave of urbanization, occurring in the less developed countries (UNFPA 2007), is distinguished by the emergence of numerous peri-

[1] The term "slum" refers to a range of precarious human settlements characterised by high densities and low standards of infrastructure. This categorization comprises different kinds of informal settlements in a wide range of tenure arrangements, for example, squatter settlements (UN-Habitat 2003).

urban poor informal settlements, generally with precarious housing and infrastructure conditions as well as limited access to water, electricity, sanitation and other basic services. The needs of the peri-urban poor are often contrasted with the demands of wealthier groups who tend to settle on cheaper land in the PUI (Simon 2008). As a result, infrastructure and basic service provision tends to be highly segregated (Aguilar 2006) and outside formal and centralized means (Hofmann 2011).

The differential provision of infrastructure and basic services in the PUI reflects an unequal arrangement of power between the poor and wealthy groups, who coexist with often conflicting on their interests, practices, perceptions, needs and claims (Iaquinta & Drescher 2000; Allen 2013). Such inequalities reject the poor from accessing to healthy urban environments, an affront that according to Harvey (1996) can only be addressed through *social justice*.

The present research explores the role of *social entrepreneurship* in fostering *environmental justice* in the PUI through the implementation of alternative infrastructure for basic service provision in poor households. "Social entrepreneurship" is a global phenomena in which "Social entrepreneurs", a relatively new category of actors in the literature, are leading a growing number of initiatives aimed to tackle social issues through entrepreneurial means. It has been documented that they are developing new ways to satisfy basic human needs that traditional institutions have not been able to meet (Seelos & Mair 2005).

In terms of this study, "Environmental justice" is understood as an articulation of different principles of social justice that ensures the access to environmental goods for all urban social groups, three dimensions of social justice were considered: distribution, recognition and participation. On the other hand, "alternative infrastructure for basic service provision" refers to unconventional means that operate outside institutional and centralized provision, in other words, independently from public or private utilities.

In short, this paper aims to respond the following question:

What is the potential role of social entrepreneurship on fostering environmental justice in the peri-urban interface? Are social entrepreneurs developing appropriate alternatives for ensuring environmentally just provision of basic infrastructure and services for the peri-urban poor?

In order to answer the previous question, two social entrepreneurship initiatives working on basic infrastructure and service provision were analysed.

1.2 Introduction to the Case Studies

The study cases selected comprise two incipient *social enterprises*[2] founded and currently operating in Mexico, the second most populated country in Latin America and the Caribbean. Nowadays around 77% of the population in Mexico live in urban areas[3], more than 85 million people (INEGI 2010) from which over 30 million are in conditions of "patrimonial poverty" (UN-Habitat & SEDESOL 2011), a poverty dimension related with deprivation of adequate housing and infrastructure.

For most of the urban poor, the informal sector represents the only affordable option for meeting their housing needs, therefore informal settlements are a common fixture in the Mexican urban landscape (Lombard 2014). Generally they are developed progressively by self-built houses that financed in a "pay-as-you-go" basis and basic infrastructure implementation depends strongly on neighbourhood cooperation (Siembieda & Moreno 1997). This in combination with other types of urbanization (medium and high-income closed neighbourhoods and social housing) has led to the expansion of Mexican cities by complex and heterogeneous peripheries in which the poor often live in remote and precarious areas, where introducing basic services is two or three times more expensive (UN-Habitat & SEDESOL 2011).

[2] "Social enterprises" are the ventures launched by social entrepreneurs.
[3] INEGI (2010) considers as "urban" to every locality with over 2500 people.

It has been documented that a growing number of organizations are implementing alternative and decentralised technologies in order to address unmet human basic needs in rural and urban areas of Mexico, from which social entrepreneurship initiatives have recently playing an important role (Ortiz et al. 2014). Considering this background, two case studies were selected: Isla Urbana, related with water provision, and Iluméxico, focused on electricity provision.

1.3 Structure of the Paper

This paper is laid out in four main sections. In the first place an overall introduction of the study is outlined, including methodological aspects. After this the first chapter is developed, which includes the theoretical framework of the research and concludes with an analytical framework for the case studies selected. The second chapter develops a characterization and an analysis of both case studies; it is made on the basis of the main theoretical assumptions outlined in Chapter 1 and revises the cases through the lens of the analytical framework defined in this same section. Finally, the study ends with a brief section of conclusions.

1.4 Justification Of The Study

One of the main reasons for developing this research is the absence of literature in the topic. There are few sectorial studies on social entrepreneurship (Partzsch & Ziegler 2011) and most literature focuses on describing the general characteristics of social entrepreneurs in comparison with conventional entrepreneurs. Moreover, the academic discussion has been relegated to business and organizational studies, having a limited impact on planning literature and practice.

Regardless their philosophical nexus, there is an evident disconnection between the study of social entrepreneurship and studies related with justice. According to Thekaekara & Thekaekara (2007), for scholars aligned to the social justice movement there is wariness for approaches related with business ideology. On the other hand, social entrepreneurship adherents tend to dismiss social justice approach for being idealist and out of touch with the reality of contemporary society.

While there are only few studies of social entrepreneurship in relation with basic service provision, the topic is almost unexplored in the PUI literature. Considering the growing global trends on peri-urbanization and the importance of social justice for addressing inequalities in the PUI, exploring a potential role for social entrepreneurs as a new kind of actor is highly relevant. This research pretends to bridge the gap between social justice and social entrepreneurship through the analysis of one specific kind of inequality: the lack of appropriate infrastructure and basic service provision for the peri-urban poor.

1.5 Methodology, limitations and biases

Elaboration of the Theoretical and Analytical Framework

The first chapter of this paper is mainly based on a desk-based research that included the revision and analysis of journal articles, relevant books and websites, institutional reports and other grey literature. Documents in English and Spanish were considered. A theoretical framework was established from the documentary review; this outlines the conceptual elements through which the analytical framework of the study was laid out.

Selection of the Case Studies

Both case studies were selected from the current fellowship directory of Ashoka [4], one of the main global organizations related with social entrepreneurship, which operates in Mexico since 1987. Six social entrepreneurs were identified working on issues related with basic domestic infrastructure and service provision (See Appendix 1), out of around 200 currently listed. Four organizations are working on issues related with water access for domestic purposes and only one with electricity access, from which one social enterprise of each kind was selected: *Isla Urbana* in regard to water provision and *Iluméxico* in regard to electricity provision[5].

Primary Research

The collection of primary research information was carried out through a series of 12 interviews in Mexico City, six with key stakeholders[6] and six with members of Tepalipac a peri-urban community located in Delegation Xochimilco that has collaborated with Isla Urbana. Semi-structured interviews

[4] Ahoka's fellowship program recognizes and supports social entrepreneurs that have "innovative solutions to social problems and the potential to change patterns across society" (Ashoka 2014b). To become a fellow they have to undergo a selection process in order to demonstrate that they fully meet a selection criteria based on the novelty of their approach, their creativity and entrepreneurial quality, the social impact of their venture and their ethical fiber (Ashoka 2014c). Ashoka was founded in 1980 and nowadays congregates the largest network of social entrepreneurs worldwide, comprising nearly 3 000 fellows in 70 countries (Ashoka 2014a).

[5] Isla Urbana was chosen as a case study because it focuses on household service provision in general terms. The other organizations working on water access have a more limited scope because they are concentrated on drinking water.

[6] The interviewees were three managers from Iluméxico, one manager from Isla Urbana, one local graduate student in current research with Isla Urbana, and one officer from Ashoka Mexico and Central America. This selection was determined by their time availability during the period that the author spent in Mexico City.

in-depth were conducted with key stakeholders and quick open interviews were conducted with community members. See Appendix 2 for the details of the interviewees. The analysis of the information collected was carried out following the analytical framework outlined in section 2.5.

Limitations and Biases

The present study has different limitations. In the first place, it was carried out in a short period of time and only few days were destined for collection of primary data. The limited time availability of stakeholders restricted the number and duration of interviews conducted. Moreover, with a few exceptions, integrated literature (combining social entrepreneurship with social justice) and literature about the case studies is very scarce, which limits the use of evidence for critical analysis.

It must be highlighted that the research only takes into account two case studies from one specific country, which represents a very small sample from the global universe of social entrepreneurship initiatives. More sectorial studies involving more case studies need to be analysed in order to get a deeper understanding of the potential role of social entrepreneurs in fostering environmental justice in the PUI. Moreover, it must be highlighted that one of the case studies (Iluméxico) does not represent an actual peri-urban based experience. It is a relevant case of provision of electricity by social entrepreneurship that could work on the context of the PUI, but it is not an experience *in situ*.

Finally, it is noteworthy that the author knows the study cases from previous academic experience in a different field of knowledge, which might have biased the analysis.

2. CHAPTER ONE. Environmental Justice in the PUI: Provision and Providers of Basic Infrastructure and Services

2.1 A Framework for Environmental Justice

Although urbanization is considered a fundamental condition for reducing poverty in the 21st century (Martine et al. 2008), it is unarguable that cities in the developing world generally relegate "poor people in poor environments". Over 90 per cent of slum dwellers today live in the Global South (UNFPA 2007), where they are consigned to precarious and hazardous environmental conditions (Dobson 1998; Hardoy et al. 2001). Their marginal status restricts them to benefiting from urban environmental goods as well as exposes them to physical and non-physical environmental threats. For example, low-income dwellers who are able to access electricity only by illegal means commonly confront high physical risks (fires, electrocutions) and are prone to evictions because of participating in informal electricity supply chains (Rojas & Lallement 2007).

The acknowledgment of a differential exposition to environmental threats among different social groups is the basis of the conceptualization of environmental justice. In urban settings, social an environmental justice concerns are intrinsically related (Harvey 1973; 1996; Dobson 1998). For this reason, along the present research, environmental justice is understood as embedded into the theoretical framework of social justice.

For Harvey (1973, p.97), social justice could be considered a set of principles that "arise out of the necessity for social cooperation in seeking individual advancement". As there is no universal conceptualization of justice, the interpretation of social justice (and in consequence of environmental justice) depends on the dimension from which it is approached. Three dimensions of social justice are considered in this paper: *distribution*, *recognition* and *participation*.

Social justice is widely interpreted in distributional terms. This approach has been strongly influenced by Rawls' (1972) liberal theory, which conceptualises *social justice* as a set of principles for the equal distribution of social, political and economic benefits among all individuals in a society. The mainstream meaning of environmental justice is made on this basis, which is well known as the "equitable distribution of environmental advantages and burdens" (Harvey 1996). Nevertheless, Rawls' paradigm has been recently challenged by the emergence of other different approaches.

Although equal distribution is crucial for understanding justice, assuming that social justice relies only on distributional terms represents a limited approach because it ignores the social structures and institutional contexts that determine inequality (Young 1990). Distributive justice assumes that nonmaterial social goods, like rights and opportunities, can be distributed. For Young (1990), this understanding is inappropriate for social goods because they are not static items, rather they are determined by social relationships and processes. In this sense, considering environmental justice only as the equal distribution of environmental goods and burdens denotes a limited assessment.

The second dimension of social justice that is considered in this research is based on the politics of recognition[7]. For Fraser (1996), justice requires both redistribution and recognition, as neither alone is sufficient to ensure elimination of social injustice. This approach comes inherently associated with a third dimension of justice, participation, because misrecognition "denies some individuals and groups the possibility of participation on a par with others in social interaction"(ibid, p.25). As Schlosberg (2007, p.26) interprets: "If you are not recognized you do not participate; if you do not participate, you are not recognized".

[7] According to Fraser (1996) the politics of recognition seeks to redress cultural injustices by celebrating cultural variations or deconstructing binary oppositions, it encompasses movements like cultural feminism and black nationalism, as well as gay identity politics.

It is relevant to stress out that although justice might be interpreted through different theoretical approaches, those who suffer from injustice experience it heterogeneously. That is why the political practice of environmental justice must be articulated as a balance of numerous interlinked principles of distribution, recognition and participation, at both the individual and group level (Schlosberg 2007).

Besides understanding the different ways of interpreting environmental injustice, it is important to point out the mechanisms by which such injustice is exercised. Young (1990) affirms that *oppression*, understood as the systematic institutional processes that prevent some people from useful participation in social life, is one of the main expressions of injustice. This mechanism often includes material deprivation or *maldistribution*, but often goes beyond distributional considerations.

Exercising environmental justice should contribute on the emancipation of maldistributed and misrecognised urban groups from their oppressive condition; in other words, from "the physical and non-physical environmental threats and other deficiencies that arise from their unequal access to the city" (Ortiz et al. 2014). For Harvey (1996), the differential exposition of the urban poor to such environmental threats is a consequence of inequalities of power. This is in line with Friedmann (1992), who states that poverty is a way of social and political disempowerment.

In conclusion, environmental justice arises from the acknowledgment of a differential exposition to environmental threats among different social groups. The poor, who are institutionally disempowered, are more prone to suffer those threats. In order to emancipate the poor from their oppressive condition, social justice must be exercised as an articulation of principles of distribution, recognition and participation.

2.2 The Peri-urban interface, an scenario for environmental injustice

The PUI in the Global South is particularly relevant in terms of injustice. It is widely inhabited by relatively or absolutely poor people, who are excluded from effective economic and political participation, including urban dwellers that pushed out of the city core to make way for visions of modernity and rural-to-urban immigrants that have resorted to build, rent or construct their own shelter in the urban fringe (Marshall et al. 2009). In addition to the general deprivation that poverty implies, these groups have to deal with harsh processes driven by global capital, which foster polarization and segregation. As an illustration, De Mattos (1999) points out that in the process peri-urbanization of Santiago (Chile) a number urban elements, that he names "artefacts of globalization" (shopping malls, large commercial areas, condos and closed neighbourhoods), had a relevant role in the spatial restructuring of the metropolis and triggered the emergence of ghettos in the outskirts of the city, particularly for poor dwellers.

The peri-urban poor are constantly exposed to exclusion. Using words of Harvey (1996), they are denigrated as "others" or "people out of place", generally without the fundamental right to "political, economic, cultural, and environmental self-determination". Many misrecognized groups settle in the PUI, communities to which institutionalized oppression has prevented from participating as peers with other urban actors in the city. For example, in Tehran, Iran, a Comprehensive Plan in 1968 envisaged that by 1974 there would be no poverty in the city. As a consequence, since that time the urban poor (mostly part of the informal economy) have been left out of formal planning policies and pushed out to the metropolitan fringe (Zebardast 2006).

Although there are many ways by which environmental injustice is expressed in the PUI, the unequal provision of adequate infrastructure and basic services is one of the most evident issues. This and other problems that prevent the poor from accessing to environmental goods or from organizing themselves to demand changes are determined by political or economical backgrounds. To

illustrate this is worth to stress out that in cities of the developing world the lack of piped water supplies is often a result of governments' refusal to give a higher priority to the topic (Hardoy et al. 2001). In this sense, poor peri-urban groups generally do not compete in parity with other urban actors for adequate service provision.

Analysing the lack of adequate infrastructure and basic service provision from a distributional perspective would focus on the equal right for accessing to them, that any individual from the PUI should have. However, it is fundamental to argue on which are the precise conditions of the individuals and groups that are left out of the provision and which are the institutional processes and structures that exclude them. According to Friedmann (1992), slum dwellers and popular sectors are useless for global capital accumulation, that is why they are economically and politically excluded.

Another important point to note is that the current planning paradigm assumes that implementation of basic service infrastructure comes with every urbanization process (Allen 2010). This usually does not happen in most cities of the Global South, so informal settlements are generally excluded from the general scope of planning. Moreover, peri-urban poor settlements often extend themselves beyond administrative and jurisdictional governmental boundaries, so they are not considered by regulations related with legal acquisition of land and provision of services.

So far the problematization of the provision of basic infrastructure and services in this paper has been concentrated within the framework of environmental justice. However, it is equally important to focus on the actors involved in such issue, particularly those who are actually reaching the poorer groups. The next two sections of this chapter are related with basic service providers and the role that social entrepreneurs could have on filling provision gaps in the PUI.

2.3 Providing water and electricity in the PUI, the role of SPSPs

The provision of basic services for peri-urban areas in the Global South has been for many decades a major challenge for central and local governments. Commonly, their institutional approaches (either through private or public utilities) have failed to reach the lower income households. The peri-urban poor generally depend on alternative ways of provision, which are appropriate for their own social, economic, political and geographical conditions. They access to electricity and water[8] through a variety of means, by community-based provision, bribery, clandestine connections, small-scale private energy grids and water networks, informal vendors, natural sources (rainwater or groundwater sources or solar energy), among others (Kariuki & Schwartz 2005; Allen et al. 2006; Rojas & Lallement 2007; United Nations Foundation 2012).

As the focus of this research is not on self-provision, the following discussion considers only external small-scale non-utility providers (like local private vendors and operators, and technology distributors), which Kariuki & Schwartz (2005) name Small-scale Private Service Providers (SPSPs). This "other" private sector provides services to a large share of the world's poorest urban and peri-urban dwellers through a multiplicity of formal and informal arrangements (Solo 1999; Kariuki & Schwartz 2005; Kjellén & Mcgranahan 2006). Despite the limitations and reliability of the information available, it is estimated that SPSPs were responsible of the provision of water to 25 per cent of Latin American urban population, and a 50 per cent in African capital cities, at the beginning of the twenty-first century (Solo 1999, p.118).

SPSPs are fundamentally entrepreneurs that have created profit-seeking businesses for the explicit purpose of delivering a service (in this case water supply and electricity), ranging from individual dealers to stand-alone networks and power grids (Kariuki & Schwartz 2005). Their emergence and growth increase in accordance to the demand from users, not in response of

[8] Although the study aims to approach the topic in general, due to the short time available, the discussion from here is going to rely only on water and electricity provision for household consumption.

policies or outside capital injections (Allen et al. 2006), so they could be considered as "demand responsive" (Solo 1999, p.123). SPSPs may operate individually (sometimes as an alternative for subsistence) or in association by formal, informal and illegal means (providing water or electricity from illegal connections to utility grids and networks). Actually, it is documented that some illegal distributors have been legalized by private utilities to co-deliver the service (Rojas & Lallement 2007).

SPSPs have played a fundamental role as "gap fillers" and "pioneers" (Kariuki & Schwartz 2005) in areas where utilities and governments deliver low quality services or in areas that they have not been able (or interested) to reach. Although water and electricity provision is essential for development and urban poverty eradication, many policies and regulations are still excluding lower-income groups from their scope due to their focus on monopolistic utilities. This has encouraged SPSPs to work outside established legal frameworks and reach the misrecognized demand of peri-urban slums, where formal providers are not "allowed" to serve the population that needs the service (Kjellén & Mcgranahan 2006; Rojas & Lallement 2007).

Centralized network systems for service provision may never become the norm in the PUI (Allen et al. 2006). Although SPSPs have demonstrated the importance of their role in the delivery of basic services for the poor, they are still not fully recognized providers. Moreover, in certain way they benefit from the needs of the most deprived peri-urban dwellers and, though the quality of the services they offer may vary in terms of quality and affordability, it is well documented that very often the poor pay higher prices for lower quality services than the utilities (Nunan & Satterthwaite 2001; Kjellén & Mcgranahan 2006; Rojas & Lallement 2007).

In order to fully emancipate the peri-urban poor from the environmental inadequacies that arise from lacking electricity and water access, it is relevant to seek different and innovative approaches. So far in the literature is not well

documented the potential that a different kind of entrepreneur could play, the *social entrepreneur*.

2.4 A New Actor in the Scene: the Social Entrepreneurs

Social entrepreneurship refers to a recently growing movement of global actors aimed to tackle social issues through entrepreneurial means (Partzsch & Ziegler 2011). Social entrepreneurs share some qualities with conventional entrepreneurs, but they are a particular kind who's main purpose is to address social needs, not commercial or financial ones (Seelos & Mair 2005; Roberts & Woods 2005). Their ventures include not-for-profit and for-profit ventures as well as hybrid organizations with mixed elements from both models (Dees, 1998). According to Bornstein & Davis (2010), their approach challenges the top-down, centralized problem-solving model that dominated the past century.

Although the literature in the subject has been developed mainly from the beginning of the current century, there are many descriptions about who and how are "social entrepreneurs". Most definitions are based on empirical descriptions and there are few theorizations. An important reference in the field is Dees (1998), who proposes that "Social entrepreneurs play the role of change agents in the *social sector*" and states their main (ideal) characteristics:

- Social mission: This characteristic is fundamentally what distinguishes social entrepreneurs from commercial entrepreneurs and socially responsible businesses. They are mission-driven, not profit-driven, so their main aim is to generate positive impact (or create social value[9]) in relation to the specific mission that they advocate (e.g. reducing poverty or combating illiteracy).

- Opportunity seeking: They are persistent and particularly skilled for recognizing, evaluating and exploiting opportunities that may help them to achieve their mission. Moreover, their approaches are dynamic because they change as they go in a process of continuous learning.

[9] To elaborate on his approach, Dees (1998) goes back to classic definitions of entrepreneurship, which describe entrepreneurs as venturesome individuals that act as "change agents" in the economy who "create value", i.e. economic value. In this sense, social entrepreneurs advocate for the creation of a different kind of value, "social value". Unlike conventional entrepreneurs, for them profitability is only a mean, but not their end.

- Innovation: They are intrinsically innovative, not only in terms of self-management but also in terms of the products and services that they provide. Indeed, Partzsch & Ziegler (2011) consider that their primary source of authority is their innovative capacity to generate new ideas for solving commonly perceived problems.

- Resource-efficiency: "They are skilled at doing more with less and attracting resources from others" (Dees 1998, p.5). As any other entrepreneurs, social entrepreneurs use scarce resources efficiently, but they explore all possible options (from philanthropy to commercial strategies) that could contribute to their social mission. Furthermore, they generally understand and take calculated risks.

- Accountability: As their purpose is to generate real improvements for the communities they serve, social entrepreneurs make sure that they correctly assess the needs and values of such communities. Generally, they make strong relationships with the different stakeholders that they engage (government, funders, communities).

Although there have not been developed common frameworks in the literature, it is important to highlight that social entrepreneurship is intrinsically related with social justice. In fact, the roots of the so-called "social sector", mentioned by Dees (1998, p.4) and widely used in the language of social entrepreneurship, come from the recognition of poverty and deprivation of fundamental human rights as unacceptable faces of social injustice (Thekaekara & Thekaekara 2007). Therefore, social entrepreneurship missions (the most important feature of social entrepreneurs) are ultimately influenced by debates on social justice.

Many social entrepreneurs are working on global social concerns like the Millennium Development Goals (MDG), reaching the unmet needs of those who have been marginalized by global markets (Koch & Caradonna 2006). This means that they are essentially addressing globally recognized social

injustices, attending maldistribution, acknowledging misrecognized groups, and supporting oppressed groups for participating as peers with other members of society. Theoretically, other actors in the private sector, like utilities or entrepreneurial SPSPs, are not able to fully address injustice because they are not meant to do it. They are meant to make economic profit and accumulate capital. Social entrepreneurs, on the other hand, are meant to create value by addressing social issues (Partzsch & Ziegler 2011; Santos 2012). This means that they are more competent to foster social justice through its different dimensions.

From an environmental justice perspective, the role of social entrepreneurship should be associated with tackling inequalities on the exposition to environmental threats and the accessibility to environmental goods. Social entrepreneurs should be able to contribute on emancipating environmentally maldistributed and/or misrecognized groups from their oppressive condition. As it is discussed previously, a great share of the peri-urban poor of the Global South lacks of appropriate and reliable provision of basic services. If utilities have not been able (or not interested) to reach them it is because such groups are being institutionally oppressed. Therefore, the fact that social entrepreneurship is creating new models for the provision of basic services to groups that remain unsatisfied (Seelos & Mair 2005) means that social entrepreneurs are recognizing such groups and that they are creating ways of distributing them.

Although both social entrepreneurs and SPSPs are reaching the needs of the peri-urban poor, it is important to clarify some differences. While SPSPs generally are engaged in service delivery, social entrepreneurs often work on implementation of basic infrastructure (See table 1). This could be explained because social entrepreneurs tend to focus on approaches that either address the root causes of a problem or institutionalize systems that continuously address such problem[10] (Santos 2012). While commercial entrepreneurs (in this case SPSPs) try to become indispensable (by providing a service in

[10] This is common interpretation found in the literature. It will be elaborated in more detail in further sections.

exchange of a fee), social entrepreneurs try to make themselves dispensable (by installing infrastructure that enables access to the resource in question). The relationship between provider and user of the service is completely different in each case. While SPSPs pretend to capture economic value from their clients in exchange of a service, social entrepreneurs aim to create social value for their clients by providing them infrastructure.

Table 1. Examples of SPSPs and social entrepreneurs' interventions for water provision

	Water provision	**Electricity provision**
SPSPs interventions	Stationary water sales points (kiosks) and distributing vendors that bring water to households or communal water storages.	Stationary electricity sales (battery charging) and distributors for selling or leasing/renting standalone systems.
Social entrepreneurship interventions[11]	Implementation of small-scale infrastructure with community ownership and educational programmes.	Implementation and local manufacturing of low-cost small-scale infrastructure for electrification, generally renewable energy based.

Source: Own elaboration based from Kariuki & Schwartz (2005), Partzsch & Ziegler (2009) and Ashoka (2014b).

According to Thekaekara & Thekaekara (2007) the "value creation" with which social entrepreneurship has been theorized (See Dees 1998 and Santos 2012) could be understood through the creation of power for the powerless. "Just as

[11] Although community members may be included in the operation and distribution of the technology, the resource in question (water or energy) is never sold, as it occurs with SPSPs.

the creation of wealth is the framework in which business entrepreneurs operate, the framework for social entrepreneurship must be empowerment" (Thekaekara & Thekaekara 2007, p.9). Following this, in order to determine a mechanism by which social entrepreneurship would contribute to the emancipation of the peri-urban poor from the oppressive condition that arises from their unequal access to basic services, the notion of empowerment will be used. In other words, it is expected that social entrepreneurship would be able to foster distributional, recognition, and participatory justice, through empowerment processes that improve the environmental and political conditions of oppressed peri-urban groups.

2.5 A Framework for the Analysis of the Case Studies

For social entrepreneurship there is no proven method, code of practice or core business model to follow (Roberts & Woods 2005). Each social entrepreneur has a different approach, generally developed and tested in relation to the conditions of the problem that they addressing and the context of the communities in which they are working. This makes problematic determining which kind of initiative could be worthy for fostering environmental justice in the PUI. In order to condensate the information collected during the primary research and clarify the path for the analysis, both study cases are characterized systematically using Dees' (1998) five main characteristics of social entrepreneurs[12] (See section 2.4):

- Social mission
- Opportunity seeking
- Innovation
- Resource-efficiency
- Accountability

This characterization does not involve any normative analysis, but describes the main features of both initiatives in relation with the theoretical assumptions discussed in the previous sections.

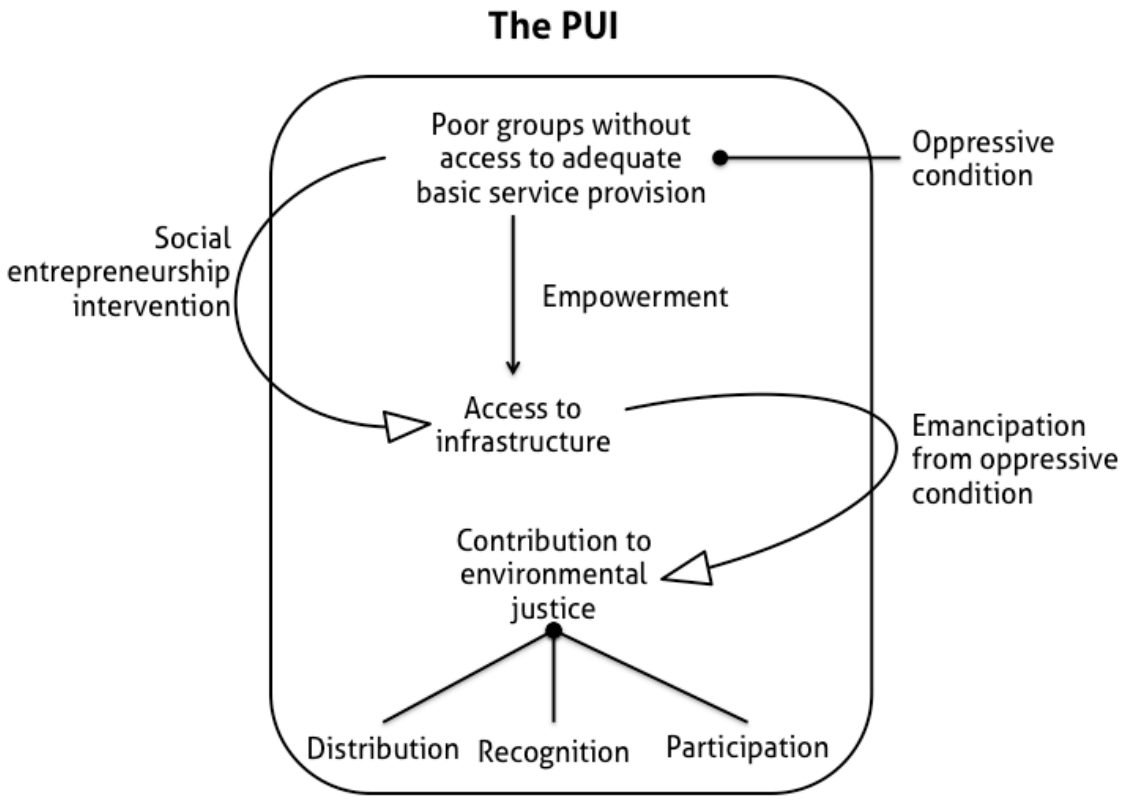
As discussed previously, the process of social value creation by social entrepreneurs could be considered as a process of empowerment of the communities with which they engage and the main outcome is the emancipation of such communities from their oppressive condition. In this sense, the analysis of this study is represented schematically in Figure 1, where the following assumptions are stated:

- The peri-urban poor that lack of adequate access to basic service provision are under an environmentally unequal oppressive condition.

[12] It is worth to explain the case studies through those characteristics, which could be called social entrepreneurship elements, considering that they are constantly repeated in many topic-related studies and Dees (1998) is one of the main references in the literature.

- The peri-urban poor that access to infrastructure by social entrepreneurship interventions get empowered and emancipated from their oppressive condition.
- The emancipation of the peri-urban poor groups contributes to environmental justice in the PUI. This happens through the dimensions of distribution, recognition and participation.

Figure 1. Schematization of the Analytical Framework of the study



Source: own elaboration.

By using evidence from the case studies, four main elements of previous scheme will be discussed in-depth: empowerment, distribution, recognition, and participation.

3. CHAPTER TWO. Testing Social Entrepreneurship in Practice, Characterization and Analysis of the Case Studies

3.1 Exploring Isla Urbana and Iluméxico: Characterization of the Case Studies

3.1.1 Isla Urbana

Isla Urbana is a hybrid venture (both for-profit and not-for-profit) focused on tackling water supply issues by rainwater harvesting. It was launched in 2009 by an interdisciplinary group of young professionals aimed to prove the viability of rainwater harvesting for challenging water supply issues in Mexico City. From the total population of this metropolis (approximately 20 million), more than 35% households lack of tap water (Tortajada 2006). Although the organization originally focused in *Ajusco Medio*, a region in the southern periphery of Mexico City with severe lack of water provision, now they have extended their interventions to many other places along the country, including rural areas.

While Isla Urbana offer Rainwater Harvesting Systems (RHS) for any kind of customer able to afford them (from simple to complex systems), they mobilize funds from many sources (generally from government and private sector) and use part of their profits to subsidize the implementation of systems in poor settlements without or with deficient water provision. In less than five years they have implemented more than one thousand RHS. The great majority of them for peri-urban poor households of Mexico City, generally subsidized by 80% to 100% with money that comes from grants, funds, corporative social responsibility and other fundraising mechanisms. The organization focuses on households that are not even able to consume the recommended amount of 50 litres of water per day per person and the water harvested is used for different domestic uses, sometimes for human consumption.

Social Mission

In words of Vargas (2014, *pers. comm.*, 10 July), COO[13] of Isla Urbana, they work for "ensuring sustainable access to water for all", which clearly expresses their social mission. This statement is made from a distributional perspective and implicitly has political assumptions, two of them are very clear:

- The use of the term "sustainable" in order to relate their venture with sustainable development and/or sustainability approaches[14], which in general terms conciliate economic development with environmental conservation.
- A quest for universal access to water, while emphasising "for all", which represents an inclusive approach by assuming that there are some groups that actually are not able to gain access.

For Isla Urbana is clear that a long-term social return of their interventions, or what Dees (1998, p.5) would call "sustaining social value", is more worthy for their mission than economic profit. That is why their objective is not to implement millions of their own-designed RHS, but to promote an "organic growth" by the adoption of similar systems, even if they are self-built by the communities in need of water access (Zafra 2013). This contradicts the logic of capital accumulation by which conventional enterprises operate, but supports the notion of creating wealth by social entrepreneurship only as a mean to a social end, not as the end itself (Dees 1998, p.5).

Opportunity Seeking

For Vargas (2014, *pers. comm.*, 10 July), a key element for the operation of Isla Urbana consists in "identifying opportunities where there are problems", as it is described by Dees (1998, p.5). So far the sustenance and growth of the venture has relied on taking as much opportunities as possible, mostly high-

[13] COO, the acronym for Chief Operating Officer.

[14] See WCED (1987) for understanding the inception of the term *sustainable development* and Bettencourt & Kaur (2011) for comprehending the evolution of the concept for more than 20 years.

risk projects that involve uncertain donors or external decisions (like in grant-seeking). Unlike utility private sector, social entrepreneurs and SPSPs are willing to assume risks on order to reach the poor, but such risks are undertaken differently. SPSPs compete in the market by assuming the full risks of their own investments without any subsidies, always at the risk that other providers can win over their customers (Solo 1999). On the other hand, Isla Urbana has been persistent in demonstrating that their model is socially, technically and economically reliable, that is why they have created strong alliances with public and private stakeholders. As an illustration, between 2011 and 2012 they implemented more than 800 systems with support from the municipal government of Delegation Tlalpan, in Mexico City. While SPSPs need to be competitive for reaching and maintaining clients, Isla Urbana focuses on strengthen relationships for reaching new communities, but as an alternative solution not as a competitor to others same-purpose organizations.

Innovation

Isla Urbana grew out from the development of a RHS specifically adapted to the conditions of ordinary peri-urban houses of Mexico City. Due to the chronic water scarcity with which they are familiar, most households generally are equipped with storage tanks in which rainwater can be collected. It is noteworthy that, originally, the founders of the venture moved into a low-income neighbourhood in *Ajusco Medio*, where the process of innovation was carried out with community involvement. They were able to monitor their systems in real conditions, have feedback from the community and improve their first prototypes until achieving a tested model. It is important to emphasize that this whole process enabled Isla Urbana to develop an unprecedented product, specifically designed for the conditions of the peri-urban poor, a neglected market for the private sector.

The initiative of Isla Urbana is in line with what Smith et al. (2014) call *grassroots innovations*, characterized by the engagement of innovators

(generally professionals) with local communities in a collaborative framework where technological innovation works as a catalyst for broader development benefits. While innovative and decentralized technologies help SPSPs to expand their scope and increase their profit, taking advantage of utilities' failures, for social enterprises like Isla Urbana, innovation supports them in tackling a social issue.

Resource-efficiency

Isla Urbana was launched with a limited seed capital, from which they have grown rapidly, placing itself as one of the main actors for rainwater harvesting in Mexico (Ortiz et al. 2014). Although so far they have been operating mostly by not-for-profit mechanisms, they recognize that it implies a high risk in terms of resource efficiency. According to Vargas (2014, *pers. comm.*, 10 July), one of their main immediate goals consists in strengthen the for-profit side of the organization in order to improve their financial efficiency. The strategy for achieving this consists in developing more innovations or even extending their scope of products to other water-related technologies like water efficiency and wastewater treatment devices.

Accountability

When social entrepreneurs are in dialogue and direct communication with communities they are informally accountable to them. Such accountability is in certain way an assurance of their impacts in terms of social value. According to Vargas (2014, *pers. comm.*, 10 July), what distinguishes Isla Urbana from other actors involved in the provision of water-access infrastructure is its close relationship with the communities in which it operates. To measure the impact of their initiative they assess the *rate of adoption*[15] of their RHS, which expect to be functional for a period of ten years after installed. Although this represents a great challenge, the organization has been successful by educating the local workforce to install the systems,

[15] Within the framework of innovation diffusion, "rate of adoption" refers to the relative speed with which members of a social system adopt an innovation (in this case RHS in poor peri-urban communities). "It is generally measured as the number of individuals who adopt a new idea in a specific period" (Rogers 1995, p.206).

using local materials, and teaching families about the merits and upkeep of their RHS (Sanders et al. 2013). This kind of activities demonstrate that the work of Isla Urbana goes beyond the solely distribution of RHS.

According to Partzsch & Ziegler (2011), accountability of social entrepreneurs, based on local involvement and educational efforts, represents one source of their legitimacy as change agents (with certain degree of power) embedded in governance structures. Precisely this sort of agency has enabled Isla Urbana to extend their scope towards more complex social change processes. To illustrate this it is worth mentioning its participation in the project *Ha ta tukari*, a collective initiative from different civil society organizations in which the implementation of RHS provided the conditions for carrying out a series of educational, health, and economic initiatives in a highly marginalized indigenous community of *Sierra Huichol*[16] (Lobo-Yurén 2012).

[16] *Sierra Huichol* is a colloquial expression for calling to the portion of *Western Sierra Madre* mountain range in which the *Huichol* ethnic group is settled (Lobo-Yurén 2012).

3.1.2 Iluméxico

Iluméxico is a social venture working on energy poverty eradication (particularly electricity) through low-cost and renewable-energy technologies. Since its launch in 2011, more than three thousand photovoltaic (PV) systems have been implemented, benefiting over 10 000 people in more than 250 localities. They operate in highly marginalized communities, mostly in rural areas that lack of electricity access. Although nowadays 97% of the total domestic demand in Mexico is covered by the national utility, the Federal Electricity Commission (CFE, in Spanish), more than three million people are still excluded from their grids (Cancino-Solórzano et al. 2010), who represent the main market for Iluméxico.

Their operation, highly influenced by the Grameen Bank[17] (Huerta 2014, *pers. comm.*, 17 July), includes for-profit and not-for-profit mechanisms as well as community development initiatives and strategic alliances with key actors of the sector. Due to the paternalistic stance of many governments and the widespread illegal connections, until now Iluméxico has not been able to intervene in the Mexican peri-urban. However, this venture represents an exceptional case of social entrepreneurship for basic service provision that could work in many other PUI contexts.

Social Mission

Although it is a venture with high financial expectations, their managers seem to have very clear their social mission. While González (2014, *pers. comm.*, 17 July), Director of Institutional Development and co-founder, states that Iluméxico is aimed to "eradicate energy poverty (in terms of electricity provision) and thereby (to facilitate access to) all the benefits that this implies", Huerta (2014, *pers. comm.*, 17 July), Social Bonding Director, suggests that they promote "energy as a platform for development". Certainly, ensuring electricity provision for the poor underlies the realization

[17] The Grameen Bank (also named "the bank of the poor") is a Bangladeshi micro-credit bank that has been widely acknowledged as a successful case of social entrepreneurship. Since it was awarded with the Peace Nobel Prize in 2006, popular attention on social entrepreneurship has increased rapidly worldwide (Phan et al. 2014).

of many interrelated human rights (in terms of non-discrimination, adequate living standards, housing, health, and sustainable development) and improvements on well-being (Tully 2006).

González (2014, *pers. comm.*, 17 July) outlines the distinction of Iluméxico with respect to commercial ventures of their same sector by affirming: "We do not sell solar panels, we implement electrification programs", statement that reflects how they envisage themselves as a mission-driven organization. Moreover, they have envisioned a progressive plan for extending their mission-related value creation. Their goal for 2025 is to assure "No Mexican without light", so then they could increase the energy system capacities in the households that already have reached and therefore that the communities they serve can use refrigerators, computers and similar technologies (Ashoka 2013). In terms of their scope's potential it is relevant how they are using pioneering strategies, which historically have demonstrated key for entrepreneurial success (Brush 2008), for addressing such an (unjust) structural gap as energy poverty.

Opportunity Seeking

Since the launch of the venture, which was financed by a non-repayable grant, they have been taking advantage from grant calls, public tenders and awards. As well as Isla Urbana, Iluméxico has grown by seeking opportunities and creating alliances. Actually one of their main partnerships is with CFE, which is not able to assume the technical and economic investments required to reach the gap of three million people (generally poor) that are currently excluded from the national grid. In like manner, when it comes to grid-dependent microenterprises, it has been demonstrated that co-management of service provision is a useful alternative for reaching the poor (Rojas & Lallement 2007).

Innovation

Although there is a documented period of large PV electrification projects in Mexico during the 1990s (Foster & Cota 2005), until the launch of Iluméxico in the Mexican market there was not any low-cost PV system designed specifically for poor households. They innovated a technology to satisfy a real demand that was being neglected by PV companies in the country. According to Ham (2014, *pers. comm.*, 17 July), Software Director and co-founder, given the conditions of the users, they were looking to develop an extremely cheap and easy to use technology.

In line with Dees (1998, p.5) assertion, Iluméxico has been engaged in a "process of continuous innovation, adaptation, and learning" because their systems have evolved (for example in terms of energy efficiency and ease of use) by knowing better the housing and environmental conditions of their clients. According to Ham (2014, *pers. comm.*, 17 July), the innovation process of the venture could be described as a process of technological change triggered by identification of needs.

Resource-efficiency

It is relevant to note that the operating model of Iluméxico has evolved in order to improve its resource-efficiency. Their original intervention strategy, based on brigades, was reformulated because of its financial unsustainability (Huerta 2014, *pers. comm.*, 17 July) and now they operate through customer service/help desks (named *Ilucentros*) established in key locations, by which they promote their technology and where their clients are able to receive personal assistance and other services as battery charging. This change allowed Iluméxico to mitigate investment risks associated with micro-loans that they offer, which are fundamental for the operation of the venture due to the unfavourable economic conditions of its clients.

Although so far Iluméxico has been operating mostly by not-for-profit mechanisms, they pretend to emigrate to a more financially sustainable model in order to become less dependent on non-repayable-funds. Actually they are planning to start operating with private investments, which is going to permit

them to launch more *Ilucentros* and to extend their services internationally. According to González (2014, *pers. comm.*, 17 July), their flexibility has permitted them to adapt their strategies as they go and it has been critical for their success. This flexibility has been also documented as advantageous for the operation of SPSPs (Solo 1999).

Accountability

As it is noted for the water sector by Partzsch & Ziegler (2011), González (2014, *pers. comm.*, 17 July) considers that the closeness between Iluméxico and the communities in which it operates is a way of "legitimizing" the work of the company. Having permanent presence through their *Ilucentros* makes them aware of the actual needs of their beneficiaries. By incorporating close monitoring and a high sense of accountability into their operation model, they have made a difference in regard to conventional unsuccessful approaches. As an illustration, between 1988 and 1994 the federal government implemented a national-scale program that included the implementation of more than 40 000 PV systems in deprived communities lacking electrification, from which over two thirds ceased functioning in a couple of years due to absence of tracking. Unlike aid interventions, social entrepreneurship initiatives like Iluméxico need to ensure their reliability in the long term because their subsistence depends on ensuring that their solution really works.

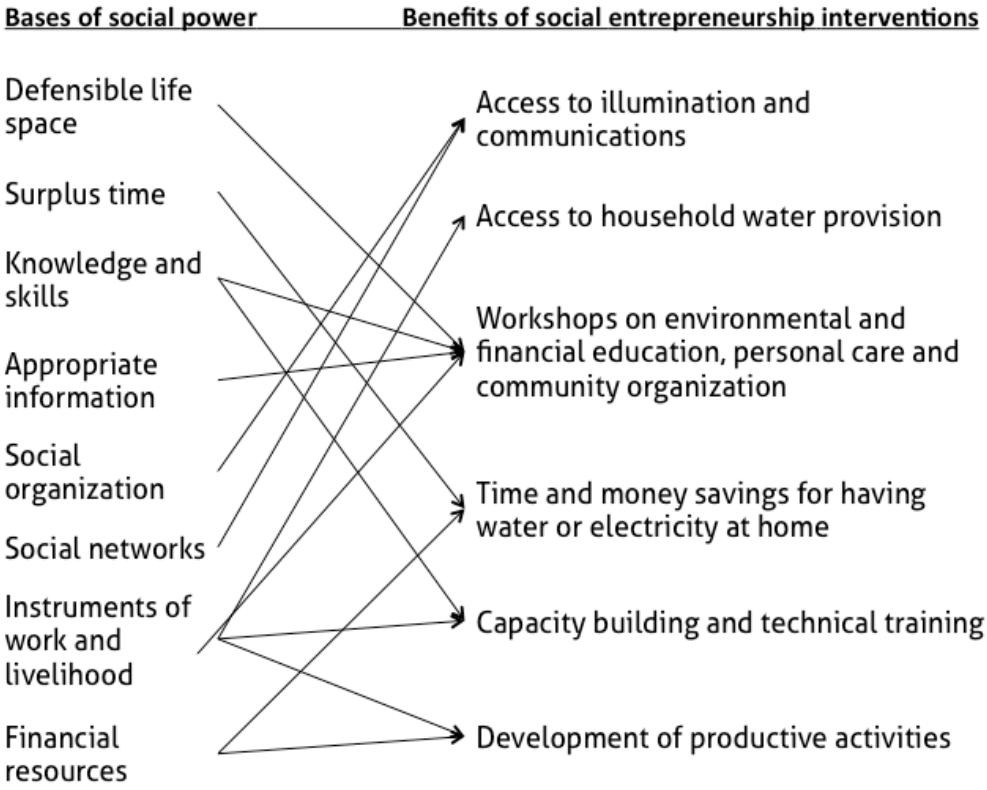
3.2 Achieving environmental justice through empowerment: Analysis of the Case Studies

3.2.1 Empowerment

It is relevant to highlight that both Isla Urbana and Iluméxico understand their interventions as a process in which the implementation of infrastructure is only one step in the achievement and sustenance of their missions. Covering the unsatisfied need of water or electricity represents only a precondition for development in the communities. That is why both organizations strive for ensuring the correct functioning and adoption of their technologies, because the process is not completed until communities gain from the benefits that arise from their adequate access to basic infrastructure in the long run. In terms of social entrepreneurship this fact could be understood as the successful creation and sustenance of social value, but in terms of social justice it could be understood as a process of empowerment.

Communities that lack of basic services transform themselves from an initial condition of high-risk exposure to environmental threats in the household (burn accidents caused by illuminating with fire, health complications due to lack of hygiene or use of dirty water, among others) to an upgraded situation in which they are able to satisfy most of their water and energy needs (personal care, cooking, housing cleaning, lighting, using communication devices, etcetera). This not only improves their environmental circumstances, but also allows them to improve their livelihoods because they are able to save money that they used to spend get water or energy from SPSPs, start economic activities from their homes, or invest the time (either in paid or unpaid activities) that they used to spend looking for water and electricity. This process of environmental upgrade coincides with Friedmann's (1992) notion of empowerment, which is articulated by improvements in the conditions of life and livelihood at a household scale. As an illustration, Figure 2 shows some relations between Friednmann's bases of social power and a selection of benefits that arise from the interventions of Isla Urbana and Iluméxico.

Figure 2. Relations between Friedmann's (1992) bases of social power and social entrepreneurship case studies' interventions



Source: own elaboration.

It is relevant to note that some empowering initiatives are fundamental for the operation of social enterprises. For example, Iluméxico gives financial education workshops that improve the capabilities of communities for paying back the micro-loans by which they can afford PV systems.

Based on the performance of Mexican social entrepreneurs, Aldana (2014, *pers. comm.*, 18 July) affirms that social entrepreneurship could work as a way of incorporating excluded and oppressed groups into citizenship. Which theoretically is in line with Santos (2012), who states that a central element of social entrepreneurship is the empowerment of actors who engage with them, in this case environmentally marginalized communities.

Although it has been mentioned that social entrepreneurship challenges structural inequalities, instead of aid, which leaves the respective structures in place (Partzsch & Ziegler 2011), evidence from the case studies suggests improvements mainly at the household and community level, not at the institutional level. However, according to Friedmann (1992), social power (which is fundamentally originated at the local level) is the prerequisite for political empowerment. This means that the social empowerment processes motivated by the social enterprises revised could generate a platform for political empowerment in order to emancipate the peri-urban poor from institutional oppression.

3.2.2 Distribution

The most obvious advocacy for justice from the study cases is based on distributional justice, thus, an equitable share from a specific environmental good for every member of society. This is motivated by an acknowledgement of the precarious living circumstances (generally in economic and environmental terms) of those who are not able to get access to adequate provision of water or electricity, which are preconditions for survival (at least in the case of water) and development. While Huerta (2014, *pers. comm.*, 17 July) suggests that infrastructure provision "levels the starting point from which social groups develop themselves", Aldana (2014, *pers. comm.*, 18 July) affirms that "all of us should have a same common basis".

Although in certain way Isla Urbana and Iluméxico address some elements of recognition and participation through their work (see discussion below), their explicit political discourse is built on distributional justice. That is why their missions are based on ensuring water or energy to all. Although the empowering impacts of the case studies on household-level environmental conditions are unarguable, it is fundamentally relevant that they move beyond discursive distributional in order to have a more integral impact on social justice.

By having a high level of accountability in the communities in which they work, both case studies have demonstrated greater impacts than governmental initiatives that are similarly based on distributional logic. For example, various residents of Tepalipac[18] mentioned that the amount of water[19] and electricity[20] that is supplied to them (as a palliative) from local government is not appropriate for their specific needs. While some families

[18] Tepalipac is an informal settlement located in Delegation Xochimilco, in southern periphery of Mexico City. A number of interviews with local residents were done in Tepalipac as part of this research. See the methodological section.

[19] By an agreement with the local authorities, each family receive 400 litres of water per week, which are delivered by tank trucks that are property of the Delegation Xochimilco (Interviewee 7 2014, *pers. comm.*, 18 July). Each user pays a periodical tip to the truck driver.

[20] By an irregular agreement with CFE, each household receive a (unspecified) fixed amount of electricity. Each household pays a fixed fee through a local community leader (Approx. 10 USD per month).

are so big that they do not receive enough supply, others have not been able to invest on enough containers for storing the amount of water given by the authority. In this latter case they are forced to waste or give away their water (Interviewee 10 & 11 2014, *pers. comm.*, 18 July).

3.2.3 Recognition

Certainly any of both missions analysed challenges whom and why exactly are left out from distribution of basic infrastructure and services. However, by addressing those who are maldistributed and engaging with them at the level that both ventures confirm, Isla Urbana and Iluméxico clearly demonstrate certain degree of recognition of the institutionally marginalized condition of the communities that they serve. This affirms that both ventures are created from the recognition of structural class differentiation. Although they clearly work under distributional frameworks, it is evident that their actions are leading them to increase the recognition of environmentally oppressed groups.

Misrecognition is evident when analysing the testimonies of Tepalipac residents. For example, a local housewife mentions that "if you do not have a good job, you are not taken in account" (Interviewee 7 2014, *pers. comm.*, 18 July), referring to her inaccessibility to housing credits that Mexican central government gives to formal "low-income" workers. Such community relied on water carried by foot and by animals during more than two years and had a dispute for electricity for eight years (Interviewee 8 & 12 2014, *pers. comm.*, 18 July). Throughout those years they had many conflicts with an original village in the area, which did not recognized them as "legal" residents (Ibid.). Despite misrecognition struggles of the community, Isla Urbana managed to get resources from a private entity (a multinational bank) to subsidize part of the cost of a number of RHS that were implemented for supporting Tepalipac community to fulfil their missing water needs.

Both social enterprises are crossing institutional boundaries that historically have perpetuated domination and oppression in Mexico. Iluméxico, for example, frequently works with indigenous communities, the group with highest levels of poverty in the country (CONEVAL 2013). In order to work with the most vulnerable communities, Isla Urbana usually elaborates diagnosis for determining deprivation of communities. Although this venture

is against urbanization in aquifer recharge zones, where actually most people of Mexico City with no access to basic services live (Tortajada 2006), it tends to work with communities that have settled there, but have been ignored for decades by the authorities that are responsible for water provision. In short, the scope of both social enterprises comprises economically and culturally misrecognized groups.

According to Ashoka's (2007, p.15) international statistics, more than half social entrepreneurs within its network has influence on policy after five years of getting the fellowship (by changing legislation, policies, and regulatory frameworks). This means that whether Isla Urbana or Iluméxico could be able to advocate in favour of the communities in which they work, opening a possibility for their recognition in the policy sphere. So far none of both ventures has influenced Mexican policies, but they are willing to do it. As an example, Iluméxico was recently invited by the federal Secretariat of Energy to give observations for a special program on renewable energy, in which the company pointed out the absence of standards for basic access to illumination.

It seems that by having influence in policy making, social entrepreneurs could play an important role by raising the voice of those social groups that are misrecognized from basic infrastructure and service provision. This is highly relevant because without recognition, distribution cannot be sustained. However, firstly it is fundamental the development of their own legitimacy as relevant stakeholders in their sectors. Isla Urbana and Iluméxico are barely getting recognized from institutional authorities as experts, which is a relevant chance that they could capitalize into policy influence.

3.2.4 Participation

According to Partzsch & Ziegler (2011), apart from their accountability and innovative capacity, a third source of social entrepreneurs' legitimacy comes from fostering participation of communities. Although Isla Urbana and Iluméxico usually strive to legitimize themselves by proving that their alternatives are reliable in the long run, they they also promote some initiatives related with participatory justice processes. It is relevant to note that even when both organizations engage closely with their communities, they do not sustain long relationships based on extracting economic value from their clients (as SPSPs operate). Through some of their initiatives (educational workshops and development of community-owned productive activities), both ventures seek participatory changes even if they are not going to benefit from them. This is in line with Santos (2012), who states that true social entrepreneurs who care for value creation do not try to make themselves indispensable.

One relevant example of their participatory-change initiatives is the *co-participation* approach, particularly pointed out for Isla Urbana's *Ha ta tukari* project, where both outsiders (referring to civil society organizations) and local community successfully established a collaborative relationship between equals, which contributed to achieving notable empowerment for the local community. According to Lobo-Yurén (2012), they triumphing on creating an articulation with the indigenous *Huichol* community (mostly monolingual, culturally hermetic, and historically distrustful of non-indigenous interventions) that after three years of collaborative working has ensured the right to water as well as has diminished the incidence of diseases, improved hygienic habits, and fostered the people's livelihoods.

According to Franco (2014, *pers. comm.*, 18 July), in Tepalipac co-participation approach (similar as in *Ha ta tukari* project) has given an identity to the community because only by that way it has been possible to transform the infrastructural conditions of the settlement. It could be considered that the

intervention of Isla Urbana there has been successful because the conditions for co-participation were given. In this sense, Aldana (2014, *pers. comm.*, 18 July) considers such approach as one of the main strengths of social entrepreneurship initiatives in Mexico because there are various successful cases of co-design and co-creation of intervention strategies between marginalized communities and social entrepreneurs.

Another relevant initiative is the one of Iluméxico through its *local engineers*. These technicians are community members that are hired and trained by the company in order to lead the local operation of *Ilucentros*. According to Huerta (2014, *pers. comm.*, 17 July), by incorporating local people the relation between the company and the community changes radically for good. As well as Isla Urbana's co-participation, the incorporation of local engineers sets an equal relationship for collaborative work in support of the development of the community.

The cases analysed show social entrepreneurship is viable for reaching the infrastructural needs of the poor, an issue that at least in Mexico has been historically characterized by political *clientelism* [21] and institutional domination from the state, particularly in peri-urban areas. Isla Urbana and Iluméxico are innovating in the ways that is effectively possible to ensure access for basic service infrastructure and, by this, to promote development and foster social justice for the least economically advantaged groups. All of this, collaborating closely with misrecognized and maldistributed communities, working together as equals.

[21] "Clientelism" is defined as a relationship based on political subordination in exchange for material rewards (Fox 1994). In Mexico it has been very common that politicians exchange provision of basic infrastructure and services in exchange of votes and mobilization in support to specific political parties.

4. CONCLUSIONS

The analysis of Isla Urbana and Iluméxico shows that both organizations are fostering empowerment processes through which the communities that they serve become able to access to decentralized infrastructure for water and electricity provision. At least in terms of distribution, these social entrepreneurs are emancipating socially disempowered groups from the environmental threats that arise from their unequal access to infrastructure and adequate service provision. However, their initiatives show some efforts on fostering recognition and participatory justice as well.

Although the missions of both social enterprises are fundamentally based on distributional justice, their work is motivated mostly by ethical causes that arise from the recognition of differential environmental conditions that are set up by economic structural inequalities. Neither Isla Urbana nor Iluméxico are able nowadays to promote substantial impacts on tackling injustice at the institutional level (policies, legislation, regulation), which doesn't mean that they are not going to be able in the future. The need to gain more legitimacy to challenge institutions, a job in which they have escalated quickly by demonstrating that their approach is reliable in the long run.

At least for now, the environmental improvements carried out by the operation of Isla Urbana and Iluméxico is having a huge impact on the bases of social power, which are the main precondition for political empowerment (Friedmann 1992). This means that it is possible that their interventions transcend from their predominantly distributional vision of social justice to a more articulated impact on recognition and participation that could allow communities to fully emancipate themselves from the institutional oppression that has relegated them in precarious environmental conditions.

The present study shows how social entrepreneurs could play an important role in providing infrastructure for basic services in the PUI and triggering processes of empowerment and environmental justice. It also illustrates the

particularities of these actors in the context of the peri-urban, making evident their differences in regard to SPSPs and demonstrating that social entrepreneurship is a more appropriate solution in order to foster environmental justice. Moreover, it shows the strong relationship between social entrepreneurship and social justice, which is poorly addressed in the literature.

To conclude, social entrepreneurship could play an important role in the provision of basic infrastructure and services in the PUI. However, this research represents only a small approach to the topic, more comprehensive studies are needed, comprising more case studies and experiences from all the Global South.

REFERENCES

Aguilar, A.G., 2006. *Las grandes aglomeraciones y su periferia regional: Experiencias en Latinoamérica y España*, Mexico City: Miguel Ángel Porrúa.

Allen, A., 2003. Environmental planning and management of the peri-urban interface: perspectives on an emerging field. *Environment and Urbanization*, 15(1), pp.135–148.

Allen, A., 2010. Neither rural nor urban: service delivery options that work for the peri-urban poor. In M. Kurian & P. McCarney, eds. *Peri-urban Water and Sanitation Services- Policy, Planning and Method*. New York: Springer.

Allen, A., 2013. Water provision for and by the peri-urban poor : public-community partnerships or citizens coproduction? In I. Vojnovic, ed. *Urban sustainability: a global perspective*. East Lansing: Michigan State University Press, pp. 309–340.

Allen, A., Dávila, J.D. & Hofmann, P., 2006. *Governance of Water and Sanitation Services for the Peri-urban Poor: A Framework for Understanding and Action in Metropolitan Regions*, London: Development Planning Unit.

Ashoka, 2007. *2007 Summary of Results*, Arlington, USA.

Ashoka, 2014a. About Us | Ashoka - Innovators for the Public. Available at: https://www.ashoka.org/about [Accessed March 24, 2014].

Ashoka, 2014b. Ashoka Fellows | Ashoka - Innovators for the Public. Available at: https://www.ashoka.org/fellows [Accessed July 1, 2014].

Ashoka, 2013. Manuel Wiechers Banuet | Profile. *Fellows*. Available at: https://www.ashoka.org/fellow/manuel-wiechers-banuet [Accessed August 10, 2014].

Ashoka, 2014c. Selection Criteria | Ashoka - Innovators for the Public. Available at: https://www.ashoka.org/support/criteria [Accessed August 6, 2014].

Bettencourt, L.M. & Kaur, J., 2011. The evolution and structure of sustainability science. *Proceedings of the National Academy of Sciences of the United States of America*, 108(49), pp.19540–19545.

Brush, C.G., 2008. Pioneering strategies for entrepreneurial success. *Business Horizons*, 51(1), pp.21–27.

Cancino-Solórzano, Y. et al., 2010. Electricity sector in Mexico: Current status. Contribution of renewable energy sources. *Renewable and Sustainable Energy Reviews*, 14(1), pp.454–461.

CONEVAL, 2013. *Informe de pobreza en México, 2012*, Mexico City.

Dees, J.G., 1998. The Meaning of "Social Entrepreneurship." *Comments and suggestions contributed from the Social Entrepreneurship Funders Working Group*, pp.1–6. Available at: https://csistg.gsb.stanford.edu/sites/csi.gsb.stanford.edu/files/TheMeaningofsocialEntrepreneurship.pdf.

Dobson, A., 1998. *Justice and the Environment*, New York: Oxford University Press.

Foster, R.E. & Cota, A.D., 2005. Two Decades of PV Lessons Learned in Latin America. In *Solar World Congress International Solar Energy Society*. Orlando, Florida.

Fox, J., 1994. The Difficult Transition from Clientelism to Citizenship: Lessons from Mexico. *World Politics*, 46(2), pp.151–184.

Fraser, N., 1996. Social Justice in the Age of Identity Politics: Redistribution, Recognition, and Participation. In *The Tanner Lectures on Human Values*. Standford University.

Friedmann, J., 1992. *Empowerment: The Politics of Alternative Development*, Cambridge, Massachusetts: Blackwell Publishers.

Hardoy, J.E., Mitlin, D. & Satthertwithe, D., 2001. *Environmental Problems in an Urbanizing World*, London: Earthscan.

Harvey, D., 1996. *Justice, Nature and the Geography of Difference*, Cambridge: Blackwell Publishers.

Harvey, D., 1973. *Social Justice and the City*, London: Edward Arnold Publishers.

Hofmann, P., 2011. Falling through the net: access to water and sanitation by the peri-urban water poor. *International Journal of Urban Sustainable Development*, 3(1), pp.40–55.

Iaquinta, D.L. & Drescher, A.W., 2000. Defining Periurban : Understanding Rural-Urban Linkages and Their Connection to Institutional Contexts. In *Tenth World Congress of the International Rural Sociology Association*. Rio de Janeiro.

INEGI, 2010. México en Cifras. *Información nacional, por entidad federativa y municipios*. Available at: http://www3.inegi.org.mx/sistemas/mexicocifras/default.aspx?e=16 [Accessed August 6, 2014].

Kariuki, M. & Schwartz, J., 2005. *Small-Scale Private Service Providers of Water Supply and Electricity: A Review of Incidence, Structure, Pricing and Operating Characteristics*, Washington, D.C.

Kjellén, M. & Mcgranahan, G., 2006. *Informal Water Vendors and the Urban Poor*, London.

Koch, J.L. & Caradonna, T.M., 2006. Technologies and Business Models that Work in Developing Countries. In *Information and Communication Technologies and Development*.

Lindert, P.H. & Williamson, J.G., 2003. Does Globalization Make the World More Unequal? In M. D. Bordo, A. M. Taylor, & J. G. Williamson, eds. *Globalization in Historical Perspective*. London: The University of Chicago Press, pp. 227–277.

Lobo-Yurén, T., 2012. *Ha ta tukari: Articulación entre organizaciones y comunidad para el desarrollo sostenible en la Sierra Huichol*, Mexico City: Proyecto Concentrarte A.C.

Lombard, M., 2014. Constructing ordinary places: Place-making in urban informal settlements in Mexico. *Progress in Planning*, 94, pp.1–53.

Marshall, F. et al., 2009. *On the Edge of Sustainability: Perspectives on Peri-urban Dynamics*, Brighton.

Martine, G. et al., 2008. *The New Global Frontier*, London: Earthscan.

De Mattos, C.A., 1999. Santiago de Chile, globalización y expansión metropolitana: lo que existía sigue existiendo. *EURE (Santiago)*, 25(76), pp.29–56. Available at: http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0250-71611999007600002&lng=es&nrm=iso&tlng=es [Accessed June 29, 2014].

McGregor, D., Simon, D. & Thompson, D., 2006. *The Peri-Urban Interface*, London: Earthscan.

Nunan, F. & Satterthwaite, D., 2001. The Influence of Governance on the Provision of Urban Environmental Infrastructure and Services for Low-income Groups. *International Planning Studies*, 6(4), pp.409–426.

Ortiz, J. et al., 2014. *Strategies for Ensuring Just Resettlement in Post-eviction Contexts: Chamazi Dar-es-Salaam, Tanzania*, London.

Ortiz, J.A., Masera, O.R. & Fuentes, A.F., 2014. *La Ecotecnología en México (In Press)*, Mexico City: Editorial Litteris.

Partzsch, L. & Ziegler, R., 2011. Social entrepreneurs as change agents: a case study on power and authority in the water sector. *International Environmental Agreements: Politics, Law and Economics*, 11(1), pp.63–83.

Partzsch, L. & Ziegler, R., 2009. The Political Biography of Water and the People ' s Biography - A Case Study of Social Entrepreneurship in the Water Sector. In *Amsterdam Conference on the Human Dimensions of Global Environmental Change*. Amsterdam, pp. 1–24.

Phan, P.H. et al., 2014. *Theory and Empirical Research in Social Entrepreneurship*, Cheltenham, UK: Edward Elgar Publishing.

Rawls, J., 1972. *A Theory of Justice*, New York: Oxford University Press.

Roberts, D. & Woods, C., 2005. Changing the world on a shoestring: The concept of social entrepreneurship. *University of Auckland Business Review*, (Autumn), pp.45–51.

Rogers, E.M., 1995. *Diffusion of Innovations*, New York: The Free Press.

Rojas, J.M. & Lallement, D., 2007. *Meeting the Energy Needs of the Urban Poor: Lessons from Electrification Practitioners*, Washington, D.C.

Sanders, K.T. et al., 2013. Clean energy and water: assessment of Mexico for improved water services and renewable energy. *Environment, Development and Sustainability*, 15(5), pp.1303–1321.

Santos, F.M., 2012. A Positive Theory of Social Entrepreneurship. *Journal of Business Ethics*, 111(3), pp.335–351.

Schlosberg, D., 2007. *Defining Environmental Justice*, New York: Oxford University Press.

Seelos, C. & Mair, J., 2005. Social entrepreneurship: Creating new business models to serve the poor. *Business Horizons*, 48(3), pp.241–246.

Seto, K.C., Sánchez-Rodríguez, R. & Fragkias, M., 2010. The New Geography of Contemporary Urbanization and the Environment. *Annual Review of Environment and Resources*, 35(1), pp.167–194.

Siembieda, W.J. & Moreno, E.L., 1997. Expanding housing choices for the sector popular: Strategies for Mexico. *Housing Policy Debate*, 8(3), pp.651–677.

Simon, D., 2008. Urban Environments: Issues on the Peri-Urban Fringe. *Annual Review of Environment and Resources*, 33(1), pp.167–185. Available at: http://www.annualreviews.org/doi/abs/10.1146/annurev.environ.33.021407.093240 [Accessed July 22, 2014].

Smith, A., Fressoli, M. & Thomas, H., 2014. Grassroots innovation movements: challenges and contributions. *Journal of Cleaner Production*, 63, pp.114–124.

Solo, T.M., 1999. Small-scale entrepreneurs in the urban water and sanitation market. *Environment and Urbanization*, 11(1), pp.117–131.

Thekaekara, M.M. & Thekaekara, S., 2007. *Social Justice and Social Entrepreneurship: Contradictory or Complementary*, Oxford.

Tortajada, C., 2006. Water Management in Mexico City Metropolitan Area. *International Journal of Water Resources Development*, 22(2), pp.353–376.

Tully, S., 2006. The Human Right to Access Electricity. *The Electricity Journal*, 19(3), pp.30–39.

UN, 2014. *World Urbanization Prospects 2014 Revision*, New York: United Nations.

UN-Habitat, 2012. *State of Latin American and Caribbean Cities 2012*, Naples.

UN-Habitat, 2013. *State of the World's Cities 2012/2013*, New York.

UN-Habitat, 2003. *The Challenge of Slums Global Report on Human Settlements*, Nairobi, Kenya: Earthscan Publications Ltd.

UN-Habitat & SEDESOL, 2011. *Estado de las ciudades de México 2011*, México.

UNFPA, 2007. *The state of the world population 2007: Unleashing the Potential of Urban Growth.*, New York. Available at: http://www.ncbi.nlm.nih.gov/pubmed/18599934.

United Nations Foundation, 2012. *Energy Access Practitioner Network: Towards Achieving Universal Energy Access by 2030*, Washington, D.C.

WCED, 1987. Report of the World Commission on Environment and Development: Our Common Future. *Annex to document A/42/427 - Development and International Co-operation: Environment*. Available at: http://www.un-documents.net/our-common-future.pdf [Accessed August 8, 2014].

Woltjer, J., 2014. A Global Review on Peri-Urban Development and Planning. *Jurnal Perencanaan Wilayah dan Kota*, 25(1), pp.1–16.

Young, I.M., 1990. Displacing the distributive paradigm. In *Justice and the politics of difference*. Princeton,: Princeton University Press ©, pp. 15–38.

Zafra, E., 2013. Innovadores Menores De 35: Enrique Lomnitz, 30 - MIT Technology Review. *Innovadores Menores de 35: México*. Available at: http://www.technologyreview.es/tr35mexico/profile.aspx?trid=1386 [Accessed August 7, 2014].

Zebardast, E., 2006. Marginalization of the urban poor and the expansion of the spontaneous settlements on the Tehran metropolitan fringe. *Cities*, 23(6), pp.439–454.

APPENDICES

Appendix 1

Ashoka's social entrepreneurs working on access to basic infrastructure and services in Mexico

Organization	Mission	Infrastructure
Grupo EOZ	Combating health problems related with poor access to water and sanitation by implementation of water purifiers, pumps and other small-scale appropriate technologies in marginalized rural communities.	Household Health Infrastructure (water, sanitation and adequate housing)
Sanut	Combating poverty and malnourishment through the implementation of low-cost ecological technologies in rural areas.	Household Health Infrastructure (water, sanitation and adequate housing)
Échale a tu casa!	Fostering access to adequate housing for the grassroots through community cooperation model that helps families to build their own homes by auto-construction processes.	Adequate Housing
Fundación Cantaro Azul	Democratization of potable water access in rural communities by the creation of community-owned businesses related with the implementation of household purifiers and water kiosks.	Safe Access to Water
Isla Urbana	Tackling water supply issues by implementing domestic rainwater harvesting systems.	Water Provision
Iluméxico	Eradicating energy poverty by combining community investment, low cost & renewable energy and cooperation between key actors of rural development sector.	Energy Provision for Lighting and Communications

Appendix 2

Summary of Interviews

#	Interviewee	Date	Organization	Position	Location of Interview
1	David Vargas	07/07/2014	Isla Urbana	COO	Coyoacán, Mexico City
2	María Huerta	17/07/2014	Iluméxico	Social Bonding Director	Iluméxico Headquarters
3	Mariana González	17/07/2014	Iluméxico	Director of Institutional Development, Co-founder	Iluméxico Headquarters
4	Hugo Ham	17/07/2014	Iluméxico	Software Coordinator, Co-founder	Iluméxico Headquarters
5	Georgina Aldana	18/07/2014	Ashoka Mexico and Central America	Communications & Framework Change Director	Ashoka Mexico and Central America Headquarters
6	Carmen Franco	18/07/2014	UNAM	Postgraduate student	Tepalipac community, Xochimilco
7	Interviewee 7	18/07/2014	Informal Settlement	Resident	Tepalipac community, Xochimilco
8	Interviewee 8	18/07/2014	Informal Settlement	Resident	Tepalipac community, Xochimilco
9	Interviewee 9	18/07/2014	Informal Settlement	Resident	Tepalipac community, Xochimilco
10	Interviewee 10	18/07/2014	Informal Settlement	Resident	Tepalipac community, Xochimilco
11	Interviewee 11	18/07/2014	Informal Settlement	Resident	Tepalipac community, Xochimilco
12	Interviewee 12	18/07/2014	Informal Settlement	Resident	Tepalipac community, Xochimilco