



**Integrating Urban and Peri-Urban Agriculture
into Public Policies to Improve Urban Growth:
São Paulo as a Case Study**

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STATEMENT OF AUTHENTICITY OF MATERIAL

This thesis contains no material which has been accepted for the award of any other degree or diploma in any institution and to the best of my knowledge and belief, the research contains no material previously published or written by another person, except where due reference has been made in the text of the thesis.

Thiago Soares Barbizan

Berlin, February 17th 2011

"A man needs to travel to places he doesn't know for breaking this arrogance that causes us to see the world as we imagine it, and not simply as it is or may be. That makes us teachers and doctors of what we have never seen, when we should just be students, and simply go there and see it."

Amyr Klink

ABSTRACT

In the last decades increasing support for and promotion of urban and peri-urban agriculture has been made, but little research investigates its political and policy dimensions. This research aims to contribute in this sense. Therefore, it underlines the topic of pro-urban agriculture policies aiming to investigate the extent to which the provision of agricultural use to idle, vacant and underutilized land close to informal settlements in urban areas and the preservation and conservation of agricultural land in peri-urban areas could prevent informal expansion.

The study focus on the conceptualization of urban and peri-urban agriculture provided by the Urban Agriculture Casablanca project and the Continuous Productive Urban Landscapes proposal to explore and analyze a NGO initiative in São Paulo, Brazil, through the Cities without Hunger and Community Gardens project. Hence, the research is based on qualitative methods such as literature review, observation, subjective viewpoints, mapping and interviews.

The research findings suggests that a multi level strategy approach, integrating bottom-up and top-down actions, is necessary to better explore the true scope that urban and peri-urban agriculture would have if applied as a policy mechanism related to urban growth, integrating existing agricultural productive land into the urbanization process while transforming the cities open spaces into productive green infrastructures and resource efficient systems.

Keywords: urban and peri-urban agriculture, public policies, urban redevelopment, community organization, land governance, food and nutritional security, urban and rural linkages

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“What I do not know is my best part.”

Clarice Lispector

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LIST OF ABBREVIATIONS

ABAST	<i>Supervisão Geral de Abastecimento</i> (São Paulo Supply General Supervision)
BMBF	German Federal Ministry of Education and Research
CADES	<i>Conselho Municipal do Meio Ambiente e Desenvolvimento Sustentável</i> (City Council on the Environment and Sustainable Development)
CAN	<i>Confederação Nacional da Agricultura</i> (National Confederation of Agriculture)
CMSP	<i>Câmara Municipal de São Paulo</i> (São Paulo City Council)
CONAMA	<i>Conselho Nacional do Meio Ambiente</i> (National Environmental Board)
CPULs	Continuous Productive Urban Landscapes
EMPLASA	<i>Empresa Paulista de Planejamento Metropolitano</i> (São Paulo Company of Metropolitan Planning)
FAO	Food and Agriculture Organization of the United Nations
IBGE	<i>Instituto Brasileiro de Geografia e Estatísticas</i> (Brazilian Institute of Geography and Statistics)
IDRC	International Development Research Centre
MDG	Millennium Development Goals
MDS	<i>Ministério do Desenvolvimento Social e Combate à Fome</i> (Ministry of Social Development and Fight Against Hunger)
MLU	Multifunctional Land Use
MMA	<i>Ministério do Meio Ambiente</i> (Federal Ministry of Environment)
MST	<i>Movimento dos Sem Terra</i> (Landless Movement)
NGO	Non Governmental Organization
PAA	<i>Programa de Aquisição de Alimentos da Agricultura Familiar</i> (Program of Food Acquisition from Family Farming)
PDE	<i>Plano Diretor Estratégico</i> (Strategic Master Plan)
PFZ	<i>Projeto Fome Zero</i> (Zero Hunger Project)
PROAURP	<i>Programa de Agricultura Urbana e Peri-Urbana</i> (Urban And Peri-Urban Agriculture Program)

PRONAF	<i>Programa Nacional de Fortalecimento da Agricultura Familiar</i> (National Program for Strengthening Family Agriculture)
RMSP	<i>Região Metropolitana de São Paulo</i> (São Paulo Metropolitan Region)
RUAF	Resource Centres on Urban Agriculture and Food Security
SAIP	Secretaria de Articulação para Inclusão Produtiva (Coordination for Production Inclusion Secretariat)
SDAU	Schéma directeur d'aménagement urbain (Land-use plan for the Casablanca region)
SEHAB	<i>Secretaria de Habitação de São Paulo</i> (São Paulo's Housing Secretariat)
SEMPLA	<i>Secretaria Municipal de Planejamento</i> (Municipal Planning Secretariat)
SESAN	<i>Secretaria Nacional de Segurança Alimentar e Nutricional</i> (National Food and Nutritional Security Secretariat)
SMA	<i>Secretaria do Meio Ambiente</i> (São Paulo State Environment Secretariat)
SMDU	<i>Secretaria Municipal do Desenvolvimento Urbano</i> (Urban Development Secretariat)
SMSP	<i>Secretaria Municipal de Coordenação das Subprefeituras</i> (SubPrefectures Coordination Secretariat)
SVMA	<i>Secretaria do Verde e do Meio Ambiente</i> (São Paulo Environment Secretariat)
UA	Urban Agriculture
UAC	Urban Agriculture Casablanca
UN	United Nations
UNDP	United Nations Development Program
USDA	United States Department of Agriculture
ZEPAG	<i>Zona Especial de Produção Agrícola</i> (Special Zones for Agricultural Production)

SECTION 1

RESEARCH RELEVANCE AND METHODS

1. INTRODUCTION

1.1 Background

Increasing urbanization rates coupled with irresponsible consumption, management and governance of land for agriculture production are main causes for food shortages and rising prices lately. The security of food in urban areas, where more than half of the worldwide population lives, is one of the greatest challenges of our time. Although sufficient arable land is still available for agriculture practices at a global level land is a scarce resource in the urban environment where is threatened by informal growth. Meanwhile, institutional aspects of agricultural production within the cities and conservation of land and existing agricultural production in its peri-urban areas are often neglected by statutory codes and urban development policies.

However, as progress in lifting millions of people out of poverty and food insecurity depends on sustainability, recognition that agricultural development is crucial to reverse such trend has been growing at the global level (FAO 2009, p.vi). In the last decades increasing support for and promotion of urban and peri-urban agriculture has been made, but little research investigate it as a political and policy problem (Binns and Lynch 1998; Cissé *et al.* 2005; Cole *et al.* 2008; Maxwell 1999; Maxwell and Slater 2003; Quon 1999). Despite these contributions, Gore (2008) observes that the policy and political dimension of urban and peri-urban agriculture research tends to be prescriptive on what governments should be doing rather than examining how things are done. This research aims to contribute in this sense.

The global food and agriculture sector is facing several challenges fostered by global change (FAO 2009). Global change is a collective term that according to the U.S. Global Change Research Act of 1990 encompasses “*changes in the global environment (including alterations in climate, land productivity, oceans or other water resources, atmospheric chemistry, and ecological systems) that may alter the capacity of the Earth to sustain life.*” In other words, it is a full range of global issues and interactions concerning natural and human-induced changes in the Earth’s environment.

One of the most powerful drivers of global change is rapid urbanization, tied to socioeconomic and technological transformations as, for instance, informality, demographic and dietary changes, bio-energy development, natural-resource constraints, environmental unbalances through climate change, food, water and energy

insecurity and the complex interactions of urban areas with their physical environment (UAC 2010a, p.8).

The UN-HABITAT expects that by 2020, 85% of the poor in Latin America, and about 40-45% of the poor in Africa and Asia will be concentrated in towns and cities. By this time the developing countries of these regions will be home to some 75% of all urban dwellers, and to eight of the anticipated nine mega-cities with populations in excess of 20 million (UN-Habitat 2004). Worldwide the urban population already exceeds the number of those living in rural areas and, in addition to that, currently one third of city dwellers (one billion people), live in informal settlements.

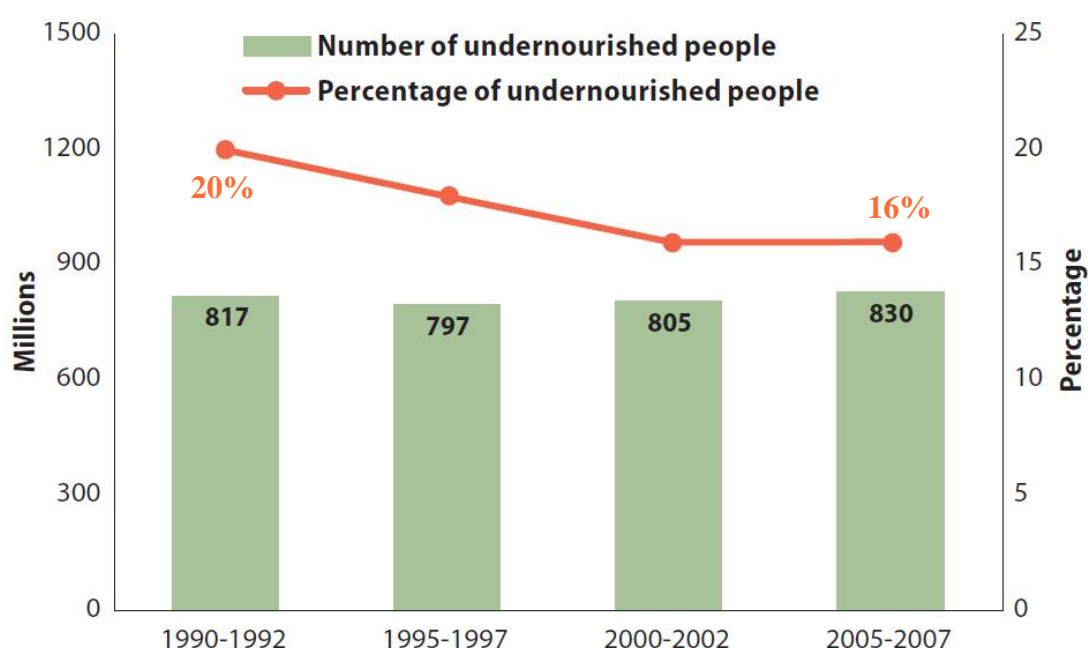


Figure 1 Proportion of people who are undernourished in the developing regions (Percentage) and number of undernourished people (Millions), 1990-1992, 1995-1997, 2000-2002 and 2005-2007

Source: (UN 2010 p.11)

The rising food prices and the economic crisis contributed to a considerable reduction in effective purchasing power of poor consumers, who spend a substantial share of their income on basic foodstuffs, 60 - 90% according to Mougeot (1994, p.2). It is known that extreme hunger can occur even in conditions of adequate production due to the absence of adequate distribution mechanisms that allow access to food by all, and even when distribution is assured, sometimes the quality of the food provided does not comply with minimum nutritional standards leading to malnutrition or even obesity related diseases.

According to the Food and Agriculture Organization of the United Nations (FAO), increasing hunger is a global phenomenon and no part of the world is immune. As those suffering from poverty and chronic hunger in the world have topped one billion in 2009, the challenge in the future is to secure the food security by increasing production to feed a worldwide population projected to reach 9.2 billion by 2050, at the same time improve its distribution and access (FAO 2009, p.vi).

1.2 Problem Discussion

Competition for land in urban and rural areas is an intrinsic issue arising from the ongoing urbanization phenomena, hence, availability, accessibility and usability of land for agricultural purposes is a relevant issue to be discussed (Quon 1999). According to the United States Department of Agriculture (USDA) and the International Development Research Centre (IDRC), 15% to 20% of the world's food is grown in urban areas, as city and suburban agriculture takes the form of backyard, roof-top and balcony gardening, community gardening in vacant lots and parks, roadside urban fringe agriculture and livestock grazing in open space (IDRC 2010; USDA 2010).

The role that urban and peri-urban agriculture can play in pursuing the Millennium Development Goals (MDG), and more specifically the ones related to poverty reduction, food security, and environmental sustainability (MDG 1 and 7), has been extensively discussed. Urban and peri-urban agriculture is a mechanism that plays a role in enhancing access to and distribution of food in urban areas, thus filling the hunger gap (Lee-Smith 2010, p.484). Main definitions of urban and peri-urban agriculture focus on its potential to become the entry point for the successful transformation of agriculture as it is closely linked to urban, ecological, social and economic systems. Moreover, as a mean of providing economic benefits for urban farmers and their communities and cities, it can enhance the living environment, being essential to the economic and nutritional security of urban residents (Smit *et al.* 1996, p.18).

Cities are socio-ecological systems and in long term urban sustainability is challenged by a number of threats which can undermine the resilience of citizens. Rapid urbanization process goes together with increasing urban poverty and urban food insecurity. In the current developmental processes of emerging megacities, the foundations are being laid as to whether open spaces can be preserved within cities or

urban regions, and therefore contribute in the long term to the attractiveness of cities and the quality of life in them (UAC 2010b).

Many of the complex challenges encompassed by rapid urbanization have a clear land dimension: unequal access to land, insecurity of tenure, land use competition, unsustainable land use, weak institutions for dispute and conflict resolution, etc (Wehrmann *et al.* 2009, p.3). These land issues cannot be arbitrarily separated into rural or urban, since these distinctions create artificial boundaries, which can impede a more holistic approach to the conceptualization of the problem.

Agriculture and urbanization are commonly viewed as conflicting activities. However, there are considerable land and flooding areas that are available for agricultural use. For Mougeot (1994), urban and peri-urban agriculture also adds value to urban land, bringing unused land into production, reversing degradation and improving urban growth. The author points out the relevance of city farming in providing a viable land use and protecting it against pests, thieves, squatters, garbage dumping, and vandals; reclaiming service and improvements, thus raising use and rent value of land.

For this to happen, urban and peri-urban agriculture should be considered an integrated factor of a comprehensive strategy for achieving long-term food security and long-term economic growth. A better understanding of the benefits and risks attributed to it by governmental authorities and support institutions (public, non-profit, private), as well as the contributions it can make to some of their policy goals, is necessary in order to facilitate the development of urban and peri-urban agriculture by means of pro-active policies and intervention strategies that enhance its benefits while reducing the associated health and environmental risks (Zeeuw *et al.* 2007, p.5).

1.3 Hypothesis and Research Questions

Accordingly to the problematic presented, this research attempts to respond to two main issues:

- The interactions of **Urban Agriculture** with **Informal Settlements** and **Peri-Urban** areas and the necessity to understand the potentials and constraints of urban and peri-urban agriculture in order to become incorporated into the urban growth process.
- **Urban and Peri-Urban Agriculture** as an integrated factor to **Policies** related to physical planning, land management, food security and economic development.

These issues arises from the hypothesis that a pro-urban and peri-urban agriculture development approach could become an effective mechanism that, in one hand, could enable informal settlements dwellers to turn idle and vacant intra urban land into productive, multifunctional and green infrastructure for the city; while in the other hand, could encourage small scale farmers to preserve and conserve their land, that are at the interface between rural and urban, integrating existing agriculture into the urban growth process.

The establishment of gardens in land inside or in the boundaries of an informal settlement could work as an element of containment while restricting territorial expansion through informal growth. To keep land under control by preventing and limiting disordered expansion could influence the mitigation of negative impacts and harshness from irregular invasions and action of squatters. In addition to that, the various benefits provided by urban agriculture could attribute some qualities, in terms of spatial and social organization, that could modify and improve quality of life of residents and also interactions of the informal settlement with the city. The same concept would apply to peri-urban land, where agricultural production would preserve it against the advance of real estate market developments or irregular subdivisions and mitigate negative impacts of rapid urbanization, balancing the competition and pressure over land on the peri-urban areas.

However, these measures in two different spheres and scales (intra urban and peri-urban) depends directly on the establishment and enforcement of policies that could

allow urban and peri-urban agriculture long term actions to foster community empowerment through the activation and stimulation of different stakeholders seeking to build resilience in disadvantaged communities and promote sustainable urban growth.

Under an urban management perspective, this research tries to understand what is needed for this integration to happen, advancing understanding of its constraints and potentialities. Thereupon, the research is developed as a way to answer the following question:

Could Urban and Peri-Urban Agriculture be integrated into a strategy to contain / control / mitigate / qualify informal urbanization and collaborate to improve urban growth?

Clearly the research must seek to address many related questions; special focus is given to the following:

- 1- How can urban and peri-urban agriculture be integrated in the public policies framework and what are the possibilities and constraints for such integration to happen?*
- 2- How can the beneficial aspects of the agricultural use of land be enhanced?*

1.4 Research Design

Two main conceptual frameworks are presented and developed through the present research. The **Urban Agriculture Casablanca Project**, one of the research projects from the program “Sustainable Development of Future Megacities” (2008-2013) of the German Federal Ministry of Education and Research (BMBF), in Casablanca (Morocco), which provides a conceptualization regarding urban and peri-urban agriculture, rural-urban linkages and synergies, and open spaces as multifunctional urban spatial systems.

The **Continuous Productive Urban Landscapes** (CPULs) vision elaborated by Andre Viljoen, Katrin Bohn, Joe Howe and colleagues provides an interesting input regarding a possible strategy for urban design and planning with a conceptual approach to foster the symbiosis between a productive landscape and the human settlement system, in other words, the integration of agriculture with cities.

As a case study to validate the theoretical framework, a project promoted by the **Cities without Hunger and Community Gardens**, NGO in the East Zone of São Paulo (Brazil) is presented along with the policies framework that made possible such action project to take place in the largest metropolis of Brazil. The case study is designed to bring out the details from the viewpoint of the participants, investigating how this project is developed in its real-life context using multiple sources of evidence (Yin 1994).

Therefore, the qualitative methods of this case study research aimed to analyze a concrete case in its temporal and local particularity focusing on people's expressions and activities in their local contexts (Flick 2009, p.21), gathering facts from various sources and drawing conclusions on those facts, helping to explain the complexities of real life situations which would not be captured through experimental or quantitative research (Tellis 1997).

The research approach is basically an 'ongoing loop' between the theoretical framework provided by the UAC project and the contribution by the NGO initiative in São Paulo's informal settlements, regarding the inclusion of urban and peri-urban agriculture in the regulatory framework and the development strategy, food and nutritional security policies, land management and land use control mechanisms, partnerships with private owners and community development.

The ongoing loop approach is better visualized in the Fig below:



Figure 2 Research Framework

Source: by author (2010)

1.5 Research Methods

As qualitative methods are of specific relevance for the study of social relations (Flick 2009) and the researcher understands that these relations results on significant impact over the space and the built environment, this study was performed using a mix of methods going from literature review and the validation of theory models until in-situ research with fieldwork, observation, subjective viewpoints, mapping and interviews. The research was structured in three phases:

First Phase: Literature Review (June – August, Berlin)

The first phase was basically the analysis and understanding of the different urban and peri-urban agriculture aspects and how it could be related to informal settlements; moreover the existent research regarding integration of urban and peri-urban agriculture in urban development policies was analyzed. The literature review and document analysis, based on published and unpublished material, included journal articles, books, reports and texts aiming to collect the most recent data to support an update theoretical framework. At the same time, research was done regarding the Urban Agriculture Casablanca project, its conceptualization of urban and peri-urban agriculture as a relevant contribution to climate-optimized and sustainable urban development. Special focus is given to its action project *Pilot Project II – Urban Agriculture and Informal Settlements*. Additionally, research included issues regarding Multifunctional Land Use (MLU) and Continuous Productive Urban Landscapes (CPULs), together with good land governance practices and property rights.

Second Phase: In-situ research (September – October, São Paulo)

The second phase is characterized by a fieldwork in the East Zone of São Paulo (Brazil) in order to understand more about the *Cities without Hunger and Community Gardens* activities within its social and political context. Visits were done in different gardens located in the urban area and also in the peri-urban area, where direct observation and surveys were applied and also mapping were produced to describe the context. In order to strengthen and consolidate the data collected, laws, technical and official documents, maps and some newspapers articles were also analyzed. The fieldwork was guided and supervised by Mr. Hans Dieter Temp, founder and coordinator of the NGO. The PROMORAR II community garden was chosen as a case study because of its strong relation to an informal settlement, great impact on the

resident's quality of life and the relation to the *Horta Sete Cruzes* garden in the peri-urban area. At the same time, qualitative data was collected through open-ended interviews and focused group discussions with different actors who have some influence on urban development. The interviews were conducted with key stakeholders on governmental secretariats, the private sector and non-governmental organizations as follows:

Secretaria Municipal do Desenvolvimento Urbano (São Paulo's Urban Development Secretariat)

Interviewee: Mr. Felipe Francisco de Souza

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(NGO - Study and formulation of public policies and municipal local development strategies)

Interviewed: Mrs. Christiane Araujo Costa and Mrs. Paula Santoro

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Interviewed: Mr. Hans Dieter Temp and Mr. Francisco Assis Neto

Third Phase: Analysis and Evaluation (November – February, Berlin)

After returning to Berlin, Germany, the research was reviewed and the data collected was analyzed and evaluated, in order to compose a consistent crossing with the theoretical framework previously developed. Finally, the research was presented and discussed.

Understanding that Urban Agriculture and Peri-Urban Agriculture encompasses different elements and characteristics and to avoid the tiring process to differentiate and contrast both along the research, the general term **Urban Agriculture** will be applied and abbreviated to UA in most cases. When issues regarding **Peri-Urban Agriculture** are relevant and the distinction to Urban Agriculture is necessary, it will be explained along the context.

1.6 Research Content

The document is divided into five main sections. The first section deals with the research relevance and methods, presenting the hypothesis and research questions. The second section brings the theoretical background and current discussion regarding urban and peri-urban agriculture and its potentials and constraints in the context of food insecurity and informal urban development. Furthermore, the Urban Agriculture Casablanca project is presented followed by the conceptual approach regarding multifunctional urban spatial systems and Continuous Productive Urban Landscapes (CPULs), leading to a discussion about land governance and property rights. The third section concentrates on the first part of the case study in São Paulo, where the Cities without Hunger and Community Gardens project is presented together with the analysis of findings and the impact of urban and peri-urban agriculture in urbanization process of São Paulo. In the fourth section the second part of the case study is developed through the presentation of public policies on land and food security that enables initiatives such as the previously demonstrated, subsequently attention is given for the most relevant constraints and how they could be overcome. Finally, in the fifth section general conclusions of the work are drawn as a discussion regarding the lessons to be learned from the São Paulo case study and possible recommendations are given for the establishment of the Urban Agriculture Casablanca Pilot Project II in the informal settlement of *Ouled Ahmed*, Casablanca, Morocco. The sixth and seventh sections contain the references and the interviews transcripts respectively.

SECTION 2

THEORETICAL BACKGROUND

2. THEORETICAL BACKGROUND

The objective of this chapter is the elaboration and the response to the scientific concepts within the upcoming chapters. At first it will be necessary to get a fundamental overview of the interrelations between urban and peri-urban agriculture, informal settlements and the rural / urban interface as it turns out inevitable to clarify to what extent a pro-urban agriculture policy can become really integrated into the urbanization process, affecting communities in terms of socio economic development and food security.

Secondly, the Urban Agriculture Casablanca project is presented while the theories and main concepts permeating the action project are discussed – multifunctional open spaces and Continuous Productive Urban Landscapes (CPULs) - as the foundation to understand the whole picture of this study and pave the way to support the hypothesis proposed and answer its research question through the São Paulo case study later on.

Finally, a discussion regarding land ownership and property rights is presented. The inclusion of urban agriculture into statutory and legal documents depends directly on the land management regulatory framework. Through different approaches this research aims to cover the main literature in respect of good land governance practices.

2.1 Urban and Peri-Urban Agriculture

Through the assumption of a virtual "*complete urbanization of society*" Henri Lefebvre (1970) proposed the analysis of a society arising from a process in which the metropolis dominates and absorbs agricultural production. Observing the most recent urbanization trends and prospects one cannot deny the realization of such assumption, however, at the same time this urbanization pattern generates new forms of agriculture. In 1996 a global survey sponsored by the United Nations Development Program (UNDP) estimated that approximately 800 million people worldwide were engaged in urban agriculture (UA) – a quite significant number of dwellers working on agriculture within cities.

The contribution of food produced in urban centers for meeting the total food needs of different cities varies widely, although most of these practices are in the informal sector, which is poorly documented, the percentages of urban labor force engaged in processing, marketing, and retailing agriculture production are quite high for many African and some Latin American cities where estimated 40% and 50% of urban dwellers are said to be engaged in some sort of agricultural activity respectively (Ruel *et al.* 1998).

In 2007 a survey organized by the *Ministério do Desenvolvimento Social e Combate à Fome* (MDS) the Brazilian Ministry of Social Development and Fight Against Hunger, was conducted aiming to identify and characterize urban and peri-urban agriculture initiatives in the Brazilian metropolitan regions, in which more than 600 initiatives were recognized. These initiatives were destined both to self consumption as for marketing, many were federally funded, or promoted and financed by state and local governments, civil society, academia and also the private sector. From the experiences included in the survey, 75% were located in the capitals of the metropolitan areas, which represents an important feature of urban and peri-urban agriculture in Brazil, due to the fact that major capitals presents high rates of urbanization, a concentration of urban poor in informal settlements and lack of available land (Santandreu and Lovo 2007).

Respectively, according to The State of African Cities report (2008c), in Africa until the mid-1980s local agriculture was able to respond well to the urban food demand, as rural-urban linkages were short and peri-urban agriculture was close to the urban markets, food was physically accessible for different socio-economic strata in almost all African cities. Nowadays Africa's food production and supply systems are

less able to meet the urban demand because of issues like urban expansion increasingly converting peri-urban food producing areas to other uses along with an increasing demand for processed food (UN-Habitat 2008c, p.34).

For instance, in North Africa, the Maghreb countries (Morocco, Algeria, Tunisia, Libya and Mauritania) follow a Mediterranean diet based largely on wheat (the highest consumption of cereals in the world, at around 200 kilos per person per year) but because of the poor local production potential and its unpredictability, massive cereals imports are required (Padilla 1997, p.11).

2.1.1 Definitions

In order to understand the full scope of urban and peri-urban agriculture and its benefits, problems and constraints, first it is necessary to assimilate its definition. Nevertheless, how to define a practice widely dependent on local aspects as, among other determinants, land availability and accessibility, socio-economic factors and political context?

In the growing literature, various definitions of UA have been developed (Ali *et al.* 2001; FAO 2007, 2008, 2009; Giseke *et al.* 2009; Leshner 2009; Mougeot 2000; Smit *et al.* 1996; USDA ; WorldBank 2005), as figures vary broadly between and within countries and regions differences in definitions and methodologies compound some level of uncertainty.

Luc Mougeot (2000) defines UA as an industry located within (intra-urban) or on the fringe (peri-urban) of a town, a city or a metropolis, which grows and raises, processes and distributes a diversity of food and non-food products, (re-) using largely human and material resources, products and services found in and around that urban area, and in turn supplying human and material resources, products and services largely to that urban area. Mougeot characterized the following determinants in which the urban and peri-urban agriculture definitions are based: types of economic activities (food/non-food categories of products and subcategories); character of location (types of areas where it is practiced); and types of production systems (product destination and production scale).



Figure 3 Main elements of Urban and Peri-Urban Agriculture definitions

Source: by author (2010) based on Mougeot (2000)

Nevertheless, the existing research on the topic often resorts, paraphrasing or elaborating further, the definition of urban and peri-urban agriculture provided by the United Nations Development Program (UNDP) in the book *“Urban Agriculture: Food, Jobs and Sustainable Cities:*

“Urban and peri-urban agriculture can be defined as an industry that produces, processes and markets food and fuel, largely in response to the daily demand of consumers within a town, city or metropolis, on land and water dispersed throughout the urban and peri-urban area, applying intensive production methods, using and reusing natural resources and urban wastes, to yield a diversity of crops and livestock” (Smit et al. 1996, p.3).

FAO (2007) highlights the multifunctional aspect of UA as one of its main attributes, being adaptable to a wide range of urban situations and to the needs of diverse stakeholders, defining it as a dynamic concept that comprises a variety of livelihood systems ranging from subsistence production and processing at the household level to more commercialized agriculture, taking place in different locations and under varying socioeconomic conditions and political regimes (FAO 2007, p.V).

In the same line, the United States Department of Agriculture (USDA) affirms that UA has almost as many definitions as locations, as it adapts and modifies itself to the environment and demography, being sometimes the reflexive response for survival of people, contributing to food security and public health; and at other times the thoughtful long-term organization of resources to moderate the harshness of the urban environment (Leshner 2009, p.5), since UA could also be articulated with solid waste and wastewater management.

Moreover, while including activities within or on the fringe of a city, urban and peri-urban agriculture contributes to shortening the food chain maintaining production systems close to urban consumers, being well connected in terms of input and output

markets. The World Bank (2005, p.184) observes that these livelihood systems could also be characterized by the small scale of production, high proportion of perishable crops (especially leafy vegetables), intensity of input use, crop diversity and low use of mechanical power.

For Mougeot (2000) conceptually what distinguishes UA from rural agriculture is its complete integration into the urban economic and ecological system, in which three levels of relationships, with regard to the degree to which agriculture is actually integrated into the city organism can be found: rural agriculture, peri-urban agriculture and intra-urban agriculture.

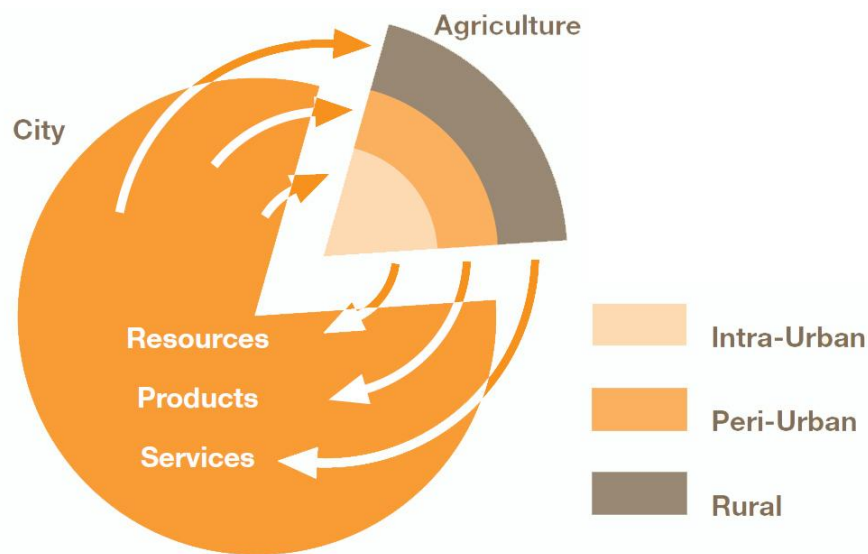


Figure 4 Urban and Peri-Urban Agriculture interactions

Source: Mougeot (2000)

The principle of integration between these different levels can be exemplified through comparisons between intra-urban, peri-urban and rural activities. While rural agriculture tends to become intensified or specialized, peri-urban agriculture is being substituted by more profitable uses, increasingly related with non-agricultural land uses (services and leisure) and urban agriculture is found to complement rural agriculture in terms of self-provisioning and market-supply flows,

Analyzing these relationships, Mougeot affirms that agriculture will become more urban, or will integrate itself more into the urban ecosystem, through a series of processes, which accumulate over time and are more numerous in the larger urban centers.

2.2 Informality as a mode of urbanization

Urban growth in developing countries is essentially rooted in informality, due not only to a lack of planning in terms of service provision for low-income classes, but also to the many categories of legitimacy and illegitimacy / legality and illegality enforced by the State (Ananya 2005, pp.147-158).

As local governments are often unprepared, unable and/or unwilling to deal with such trends, little was done with the intention to control informal growth. Eradication policies and forced eviction, through many years, were strategies to remove informal settlements from central areas in order to control public hygiene and epidemics.

Increased awareness in international level on the right to housing and protection against negligence fostered the creation and implementation of appropriate strategies to deal with informal settlements (resettlement, enabling and self help approaches). More recently, large investments have been made in social development and in-situ upgrading of informal settlements (UN-Habitat 2003, p.128), aiming to provide basic urban services, while keeping the residents in the same location through secure tenure and access to credit. Critics to this policy approach rely on the assumption that only the built environment and physical space is redeveloped rather than upgrading people's political capacities or livelihoods.

Ananya Roy (2005, p.148) defines urban informality as an organizing logic, a system of norms that governs the process of urban transformation itself, being not a separate sector but rather a series of transactions that connect different economies and spaces to one another, according to the author this notion of informality as a mode helps to reveal some key contemporary trends of urbanization.

Squatter settlements based on land invasions and self help housing can exist alongside upscale informal subdivisions formed through legal ownership and market transactions but in violation of land regulations (*ibid.* p.149), spreading across the territory and shaping a landscape in which public and private lands are illegally occupied and subdivided through informal relationships and arrangements.

The same author emphasizes that the rural / urban interface is the site for new informality in many cities of the world, as it is constituted through many forms of flows of labor and types of housing. Metropolitan informal urbanization is made possible through the particular regulatory logics of agricultural land that exist at the rural / urban interface of many Third World cities. These fringes became the place for informal housing practices for the elite where informal land subdivisions and gated communities

splinter the urban landscape, taking advantage of some level of infrastructure and guaranteed security of tenure.

2.3 Urban and Peri-Urban Agriculture: Potentials and Constraints

Therefore, as urban and peri-urban agriculture relates to a variety of issues like food security, poverty alleviation, public health, land use planning, waste and water cycles, economic development and community development, it should be further explored in developing regions due to its crucial role in addressing socio-economic and environmental issues and promoting sustainability. Likewise, would be somewhat irresponsible to neglect the relevance and impact that urban and peri-urban agriculture activities can have on conserving land in peri-urban areas as well as on the livelihood of informal settlements residents, where the above mentioned social-economic aspects are inevitably concentrated and leveraged.

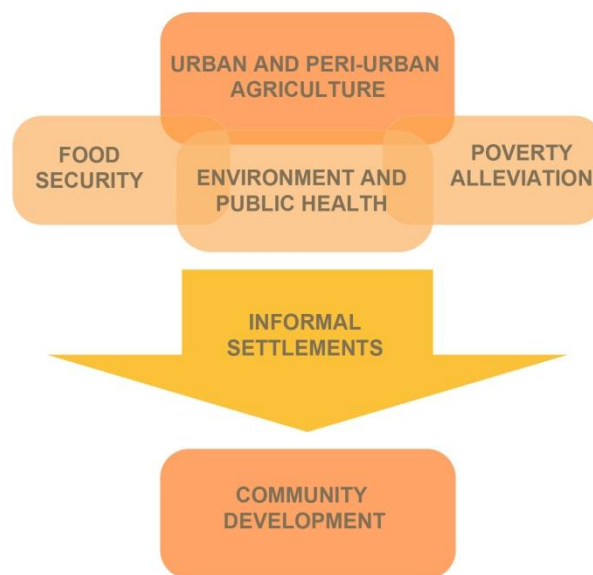


Figure 5 Urban and Peri-Urban Agriculture and Informal Settlements

Source: by author (2010)

2.3.1 Food Security

Urban and peri-urban agriculture could be seen first and foremost as a subsistence activity, through which urban residents use space for food production as a response to deficient access to supplies and weak purchasing power. As food and fuel purchases already absorb a large share of the urban poor households' income and the costs of supplying and distributing food from rural areas to urban areas are rising continuously, it is expected that urban food insecurity will increase (FAO *et al.* 2005), especially in situations where rural urban relationships are weak or non-existing or where rural production and supplies to cities are interrupted in situations of crop failures for example (Zeeuw *et al.* 2007, p.7).

According to the Resource Centre on Urban Agriculture and Food Security (RUAF) the production of food in the city is in many cases a response to inadequate, unreliable and irregular access to food, tied to the lack of purchasing power, constituting an important part of people's livelihood strategies.

The latest spike of world hunger, the food price crisis and global economic downturn, inevitably affected the urban poor. Therefore, UA activities contiguous to informal settlements can be a viable alternative for providing access to fresh and nutritious food at close proximity for the urban poor living in these areas while reducing its cost, as locally produced food involves less intermediaries and less transport, cold storage, processing and packaging (Zeeuw and Dubbeling 2009, p.12).

The contribution of UA to household food security and health nutrition is probably one of its most important assets (Zeeuw *et al.* 2007, p.7). The right to adequate food is closely related to the physical and economic access at all times to food or means for its procurement, in other words, food must be constantly available, accessible and adequate for everyone (FAO 2010, p.2). People living under the poverty line usually cannot access adequate food or the means to grow it themselves.

According to some figures by the United Nations (UN), about 50% of hungry people are smallholders in rural areas and 20% rural landless people. Another 10% are pastoralists, fisher folk and forest users, while the remaining 20% live in urban areas (UN 2005, p.6). It is important to recognize then that a great number of people suffering from hunger and malnutrition are poor and marginalized urban households.

The food security benefits of engaging in UA materialize mostly through shorter food chains and better access to additional and more nutritious food. UA does appear to be associated with greater dietary diversity and calorie availability, both measures of an

improved diet and hence closely related to public health. Relatively higher consumption of vegetables, fruits and meat products translates into an overall higher intake of energy as well as higher calorie availability.

Zeza and Tasciotti (2010) provided an analysis of empirical data about the magnitude of UA on household food security, through a research in 15 different developing countries, indicating that agriculture is indeed a not negligible reality of the urban economy, involving anywhere between about 10% to 70% of urban households. Santandreu and Lovo (2007, p.52) argues that UA in Brazilian history, for example, has been related to self-consumption activities reinforcing the necessity for improvement on the family nutrition.

Locally produced food is fresher, more nutritious and diverse than food products bought in supermarkets or in fast food chains. It also leads to more regular food intake, which is crucially important for young children, the elderly or sick household members and pregnant and lactating women. Involvement in agriculture also leads to better mitigation of diseases (better nutrition and home-grown medicinal plants), more physical exercise, less dependency on food aid and enhanced self esteem (Zeeuw and Dubbeling 2009, p.10).

Zeza and Tasciotti (2010) points out that in two thirds of the countries analyzed in their research results showed a correlation between an active participation of urban household in agricultural activities and greater dietary diversity, this after controlling for economic welfare and a set of household characteristics. For the same authors, within recent trends in food markets and the overall economic crisis, these findings acquire particular policy relevance. Specially due to the fact that rural and urban poor often lack access to sufficient productive resources such as land, water, fertilizers and seeds, as well as to markets, information and technology (FAO 2010, p.10).

2.3.2 Poverty Alleviation

With respect to poverty alleviation urban and peri-urban agriculture can be a mean for income generation, especially for women and elderly who engage in agricultural activities to supplement their assets, serving a share of population excluded from the formal economy. Despite the fact that UA production is generally geared towards consumption within the household, considering the presence of UA and its relevance in food security, is quite obvious the assumption that some urban famers are able to

generate income for themselves and their families by offering their goods on local markets.

Accordingly, households involved in UA could benefit economically from their agricultural activities by saving on food expenditure and consuming their own production, while investing their savings in other livelihood essentials. The generation of income through sales of surplus crop and livestock production to neighbors and local shopkeepers and to local and city markets, supermarkets and institutional markets (schools, hospitals etc.), could increase their purchasing power and assist better their needs.

In addition, poor urban households may benefit from the production and sales of handcraft processed products and also the production and sales of agricultural inputs (e.g. production of compost or animal feed from collected organic waste) (Zeeuw and Dubbeling 2009, p.13).

Moreover to economic benefits (sales and savings), UA also encourage urban agricultural producers to develop micro-enterprises to foster the production of necessary agricultural inputs (like the collection and composting of urban wastes, production of organic pesticides, fabrication of tools, delivery of water, buying and bringing of chemical fertilizers, etc.) and the processing, packaging and marketing of outputs.

However, policies and programs are crucial to assist smallholder urban producers and small retailers and wholesalers in urban areas as they typically lack the resources, organization, and skills to provide quality food with demanded standards by urban consumers or to integrate themselves with new coordinated market structures. Access to affordable credits and credit conditions is also essential at that stage, specifically concentrating on agro-processing and/or marketing of UA produce (Zeeuw *et al.* 2007, p.11).

Concluding, urban and peri-urban agriculture, even not being a primarily source of cash income, can be an alternative source and part of a poverty alleviation and local economic development policy, mitigating the effects of poverty while enabling social inclusion and community development.

2.3.3 Environment and public health

Urban and peri-urban agriculture plays an important role for the environment and public health by sustainable reusing and managing urban wastewaters and solid waste, while conserving land and water resources. The integration of urban and peri-

urban agriculture with waste management and nutrient recycling could turn urban wastes into a productive resource.

Wastewater is a major source of irrigation water supply for urban and peri-urban agriculture, reducing the demand for freshwater supply and mitigating the stress on water resources, while providing regular supply nutrients replacing expensive industrial fertilizers. Additionally, the reuse of wastewater also scale down the discharge of wastewater into rivers, canals and other surface water sources and thus diminish their pollution and prevents soil degradation, contamination and erosion in the agricultural areas. In this sense, urban and peri-urban agriculture can also have a positive impact on city water management, because green spaces with permeable land surfaces allow rainwater and runoff to drain through the soil.

In many regions that suffer with periods of droughts attempts are being made to use wastewater in urban food production. Adelaide, Australia, is a successful case of using wastewater from the city for crops irrigation, while Bristol, Wessex, sewage is being turned into a soil conditioner and fertilizer (Viljoen *et al.* 2005, p.39). However, due to fear of health impacts, increasing supply instead of managing demand, and also cultural factors, safe wastewater reuse is still not clearly incorporated into national or local policy in most countries.

Urban and peri-urban agriculture also offers the potential to use organic waste for composting, thereby reducing the need for land-fills. Nevertheless, the use of solid waste and wastewater has both advantages and disadvantages. It saves farmers money and reduces environmental pollution, but it may also have negative health and environmental effects if certain associated risks are not taken into account and proper preventive and guiding measures have not been taken (de Zeeuw and Lock, 2003).

For example, a problem related is that crops can be contaminated with pathogenic organisms or heavy metals, due to irrigation with water from polluted streams or with insufficiently treated waste water or organic solid wastes. Certain diseases (bovine tuberculosis, pig and beef worm, trichinosis, anthrax, salmonella and campylobacter) can be transmitted to humans by livestock kept in close proximity to them, if proper precautions are not taken.

Input use, especially of fertilizer and pesticides, is relatively high in urban and peri-urban agriculture, leading to potentially high residues in food, especially vegetables. High input use may create health hazards for consumers and producers and degrade resources such as soil and underground water reserves. Farmers have little incentive to reduce pesticide use in view of low pesticide costs, inadequate knowledge

of conservation farming options, low availability of extension services, and inadequate market premiums for providing consumers with products that have been produced using environmentally sound and socially acceptable production practices. Farmers need technical advice to improve food quality and institutional innovations to monitor agricultural practices and food standards (WorldBank 2005, p.186).

Critical issues concerning urban and peri-urban agriculture include: use of pesticides, use of urban waste in agricultural production, environmental pollution caused by agricultural activities in densely populated areas, unhygienic food marketing and an inability of producers, wholesalers, retailers, and other agents engaged in food processing and marketing to integrate within coordinated food chains

Finally, urban and peri-urban agriculture can also positively increase biodiversity through ecological production systems (organic farming), providing also recreational opportunities for citizens (recreational routes, food buying and meals on the farm, visiting facilities) or having educational functions (bringing youth in contact with animals, teaching about ecology, etc.).

2.3.4 Achieving Sustainability

The contribution of urban and peri-urban agriculture to sustainable urban development, by (re) using efficiently the local resources and materials (land, water, waste, manpower, knowledge etc.), is often claimed in the literature (Santandreu and Lovo 2007, p.11).

However, urban and peri-urban agriculture can only be efficient, effective and safe, when fully recognized by municipalities as an integral part of a sustainable urban system. Cornway and Barbier (1990), cited in Mitlin (1992, p.115) define agriculture sustainability as *“the ability to maintain productivity, whether of a field or farm or nation, in the face of stress or shock”*. The authors argues that sustainability is only one of four aspects of agricultural development; the others being productivity (ie. the absolute amount produced), stability (ie. how reliable is production) and equality (ie. whether all receive an equal share of production).

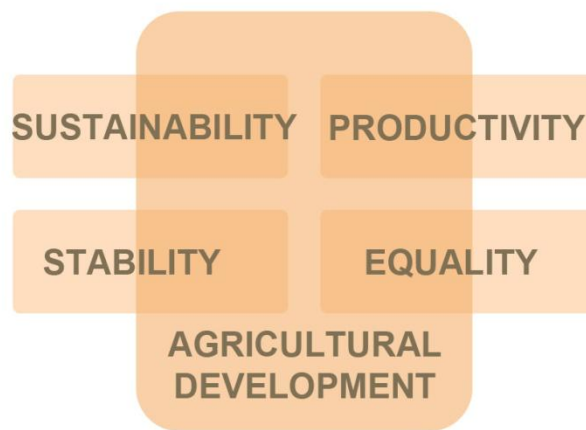


Figure 6 Sustainability in Agricultural Development

Source: by author (2010) based on Mitlin (1992)

To return to one of the aspects of sustainable development identified above, these authors stress the role of participation in agricultural development (and by implication sustainable development). They note that farmers will rapidly adapt new opportunities if they can see the benefits and emphasize that farmers themselves are an important source of new ideas if involved in these debates (Mitlin 1992).

These activities should be guided by respect for the local wisdom and knowledge, promoting gender equity through the use of appropriate technologies and participatory processes, promoting urban and environmental management of the cities, contributing to improving the urban population quality of life and the sustainability of cities.

Smit *et al.* (1996) states that sustainable agriculture can only be achieved while contemplating the inclusion of urban and peri-urban agriculture. The authors argues that city farming provides benefits that rural agriculture cannot, listing some as: storage and packaging, reduced energy costs and pollution for transport, less waste through spoilage, use of urban organic waste, and wastewater as an agricultural input, and fresher produce available to consumers. Therefore, urban and peri-urban agriculture should not be seen as a competition to rural agriculture; instead, one may support the other in order to achieve sustainability.

Through the creation of cooperative structures between urban and rural farmers stronger and direct linkages can be built, thus benefiting rural producers by enabling them to reach the urban consumers, increasing profit and price stability both for rural and urban farmers, which is an important contribution of UA to the wider issue of urban

sustainability, supplying food from close-by and offering livelihoods for city people (Viljoen *et al.* 2005).

This spatial system is to be understood not merely as a functional infrastructural space, but also as a working and living environment for a portion of the urban population. In the process, the focus rests on today's peri-urban areas, meaning that urban farmers become spatial producers of a new urban milieu – the “rurban” (UAC 2010a). The World Bank (2005) elected and characterized key issues of urban and peri-urban agriculture in production, livelihood earnings, environmental protection, and input supply at the household, institutional, and policy levels that can be observed in Table 1.

ISSUE	HOUSEHOLD LEVEL	INSTITUTIONAL LEVEL	POLICY LEVEL
Production, processing, and marketing	<ul style="list-style-type: none"> · Farmers understanding of urban markets; appropriate selection of farm and nonfarm enterprises. · Competent enterprise management. 	<ul style="list-style-type: none"> · Institutes to develop and monitor standards for agricultural practices and food quality. · Public-private sector collaboration for input supply and market infrastructure. · Technologies to reduce seasonality of supply. · Enable small enterprises to integrate with emerging food chain structures. 	<ul style="list-style-type: none"> · Recognition of the role of urban and peri-urban agriculture in urban planning, and appropriate price, trade, and land policies. · Policies for improving farmers' access to information.
Livelihoods	<ul style="list-style-type: none"> · Targeted technologies to improve the livelihood of urban poor. 	<ul style="list-style-type: none"> · Recognition of the role of urban and peri-urban agriculture in economic crises. · Strengthening the backward and forward linkages between rural and urban agriculture. 	<ul style="list-style-type: none"> · Food and trade policies to reduce the impact of high food prices.
Environment, health, and equality	<ul style="list-style-type: none"> · Adoption of sustainable practices. · Monitoring pesticide residues. 	<ul style="list-style-type: none"> · Create awareness about fresh, hygienic, and quality food, and adopting food quality and safety standards. · Institutional arrangements to manage environmental and social externalities of urban and peri-urban agriculture (e.g., heavy metal and microbial contaminations of the environment and food). · Regulating use of city wastes. 	<ul style="list-style-type: none"> · Policies to encourage people to keep the city green. · Awareness of environmental perspectives of consumers. · Appropriate labor policies.

Table 1 Issues related to Sustainable Urban and Peri-Urban Agriculture

Source: World Bank (2005)

Summarizing, most literature on urban and peri-urban agriculture has an advocacy tone, under the light of the Millennium Development Goals, exalting the role that agricultural activities in and around cities could contribute to meet the food security needs of urban areas, providing employment to urban dwellers and helping in environmental and public health by reusing and managing urban wastewaters and absorbing solid waste. Urban and peri-urban agriculture can thus have important benefits and has proven to be crucial for some groups of society, such as the urban poor as well as women of reproductive age and children, which will later be discussed in the case studies presented in this research.

However, as little attention is given on the role that urban and peri-urban agriculture has in land use control, this research recovers Smit and Nasr (1992) and Mougeot (1994) reflections over this issue aiming to highlight the contribution of UA on sustainable urban development and the integration of peri-urban agriculture into the process of urbanization.

As current development in urban centers nowadays sets the course for future quality of life in such places, it is of primary importance the discussion regarding future mega-urban open space systems. This conceptual framework is translated and further elaborated in the action research developed by the Urban Agriculture Casablanca project and the recent awareness raised by Viljoen, Bohn and Howe (2005) about the role of urban agriculture as an innovative policy intervention to turn idle and vacant land into productive urban landscapes.

2.4 Urban Agriculture Casablanca

Urban Agriculture as an Integrative Factor of Climate-Optimized Urban Development, Casablanca

The Urban Agriculture Casablanca (UAC) inter-and-trans disciplinary project seeks to investigate whether urban agriculture could be an integrated factor into sustainable climate optimized urban development related to multifunctional open-space systems that are adapted to the urbanization challenges. The project understands that sustainable and qualified urban development requires the formulation of conceptual responses in order to conform, structure and guide the process of transformation of peri-urban spaces, thus offering a new awareness for the interactions between urban and landscape development.

Arguing that most of the open space concepts (central parks and green belts) were conceived in response to urban growth in the 19th and 20th century, the research developed aims to raise attention to the fact that nowadays different development dynamics revolves around the scarcity and competition for resources, such as land and water (*Giseke et al. 2009, p.76*), thus securing and allocating agricultural land in peri-urban areas today could be a possible approach to face this problematic in the future.

Therefore, for more than five years, the German-Moroccan research team has been working on this issue using the example of the urban region of Casablanca in a study within the scope of the German mega-city research project “Sustainable Development of Future Megacities” (2008-2013) funded by the Federal Ministry of Education and Research (BMBF).

CASABLANCA OVERVIEW

The grand Casablanca region consists of the core city of Casablanca (Préfecture Casablanca), the provinces Nouaceur and Mediouna, and the prefecture Mohammedia. It is the largest urbanized region in the Kingdom of Morocco, with 3.6 million inhabitants (according to the official 2004 census), representing 12.1 % of the country's total population. Unofficial estimates are now as high as 6 million inhabitants, due to numerous informal settlements and recent migration flows. The population of the region is very young: one third of the inhabitants are younger than 15 years. In 2008, the Human Development Index (HDI) ranked Morocco 127th out of 179 countries.

Table 2 Casablanca Overview

Source: Urban Agriculture as an Integrative Factor of Climate Optimized Urban Development, Casablanca Evaluation Report (2010b)

In North Africa the cities are the main drivers of the economic growth, however agriculture still accounts for approximately 43% of jobs (UN-Habitat 2008c, p.45), and will persist to be an extremely relevant sector, especially as world food prices rise.

Rapid urbanization and ongoing migration are the main drivers of informal growth in the peri-urban areas of Casablanca, as farmers sell their land (or part of) as an alternative to make a living and, consequently, new inhabitants are attracted by the opportunity to buy a piece of land to build a house of their own, expanding then the existing informal settlements and creating new ones.

As in many other cities agricultural land is being absorbed and suffering transformations in Casablanca, whilst agriculture itself is treated as a marginal form of land use, that does not fit into a modern city anymore. Peri-urban agriculture practices declines because of unfavorable conditions for production such as access to water during dry periods, costs of expensive means of production and low profit in return, land availability and also due to capacity and training aspects such as lack of assistance and lack of cooperatives between farmers.

Nevertheless, contrary to the original assumptions, the UAC project research pointed out that informal and subsistence-related practice of UA played only a minor role in Casablanca, and that more emphasis should be given on an area related approach, concentrating on the tremendous transformation processes in today's peri-urban area of the urban region. The 2008 food riot raised attention for action and according to the UN-Habitat (2008c) solutions can be found in stimulating agricultural production;

improving infrastructure to facilitate inputs into agriculture and outputs from agriculture to cities; and better water management to convert the non-productive territories of the continent to food production for internal use and future export. There is now a raising awareness to the fact that African governments could consider how they can strategically position themselves for changing urban food requirements and the need for supply strategies and systems in the short, medium and longer term so that they will continue to be able to feed their increasingly urban societies (*ibid.* p. 35).

Accordingly, the scope of the UAC project is an investigation into how agriculture can be integrated into the urban structure and the urban development process, and how it should be configured in order to make a contribution to sustainable and climate optimized urban development in the sense of a multifunctional infrastructure.

The project's underlying assumption is that an open space system that promotes sustainable, climate-optimized development of future megacities must be productive and should create multiple synergies between urban and rural areas as well as between city and agriculture. On the one hand, as productive green infrastructures, these areas are devoted to food production. They thus make a direct contribution to urban food supply and to ensuring a livelihood for urban farmers. What is more, depending upon where they are situated, these areas can provide the city with further urban ecosystem services, for example by contributing to integrated flood protection, flood management, energy production and mitigation of urban heat island effects. As multifunctional green infrastructures, they also provide opportunities for rest and recreation within the city (UAC 2010b).

Therefore, the four main questions that were formulated to steer the Urban Agriculture Casablanca research are:

- *To what extent can Urban Agriculture play a significant role in adapting to the consequences of climate change, in climate protection, and in energy efficiency, which represent amongst Morocco's greatest economic and ecological challenges?*
- *To what extent is Urban Agriculture an innovative strategy for the sustainable land conservation of urban open space?*
- *To what extent can Urban Agriculture contribute to the struggle against poverty?*
- *How can Urban Agriculture be integrated as a vital element of urban development in accordance with local conditions?*

As a result of this process the concept of UA encompasses a number of different subsidiary concepts with different relations. These five sub-concepts are examined both individually and as overlaps in a process of dynamic balancing and integration (UAC 2010b).

The sub-concept 1 takes urban agriculture as space for regional food production and concerns with the question of to what extent UA can contribute to a sustainable provision of nutrition for the city and, therefore, how far it can promote climate-optimized diet styles and urban-regional nutritional sovereignty, implicitly assisting sustainable nourishment and the fight against poverty. This question is primarily examined from a nutritional-science, social or cultural perspective, but above all in terms of its spatial impacts. Preliminary model calculations have shown that even with various different optimizations the ‘foodprint’ (the amount of land needed to supply one person’s nutritional needs for a year) of Grand Casablanca citizens extends far beyond the spread of the urban region. However, they also clearly illustrate that the agricultural land set aside in the current master plan could secure almost half of Grand Casablanca’s fruit and vegetable needs by irrigated agriculture.

The sub-concept 2 takes UA as beautiful, productive and recreational space. Provision of sufficient open space for leisure and relaxation is an important goal in current urban development policies, equally so in Casablanca. UA supplements the spectrum of traditional urban open spaces such as parks. The question of how UA can be productive in its classical sense and simultaneously act as urban leisure and recreational space is analyzed. This applies above all to the further urbanization of peri-urban areas and the open-space structures that should ideally be established there. To equally view productive spaces, in terms of multi-functionality, as attractive or recreational spaces is a new phenomenon becoming increasingly important in Casablanca. Concepts to show the inclusion of productive landscapes and leisure provisions in the peri-urban area are to be developed at a micro- and meso level in the course of the project work.

The sub-concept 3 integrates UA with resource - efficient urban-rural cycles. This concept concentrates on establishing interactive and resource-efficient cycles between agriculture and the city, and on generation of co-benefits and synergies between urban and rural. One focal point is to re-supply agriculture with part of the treated settlement wastewater, and thereby enable a considerable increase in irrigated farming. Constructed wetlands can, in addition, be integrated into agricultural landscapes. Because in some areas only the rudiments of a waste water treatment

infrastructure are currently in place, there is a great development potential in constructing decentralized, more resource-efficient cycles within further urban development. The recirculation of part of settlement waste into agriculture also realizes additional resource efficiency. In Casablanca there are as yet no concepts for a decentralized settlement waste collection, treatment and recirculation. In order to anchor procedural thinking deeper in urban development a third element is energy generation, for instance, to name one example, via the utilization of the residual material from UA. This subsidiary concept is linked not only to specific technological solutions, but is accompanied by processes that have to be established in the long-term, such as the introduction of new forms of agricultural production and the acquiring of new cultural practices in interface management.

The sub-concept 4 integrates UA and ecosystem services against the background of climate variations and climate change, it analyses the contributions that agriculture can provide to assist in regulating the ramifications of climate fluctuations and extreme conditions, and that thus contribute to integrated risk management. The objective is to systematically develop UA beyond the mere production of foodstuffs and open space so that it becomes a regulative provision in adapting to climate change. In terms of the analysis to date, the focus is on flood protection, flood management, alleviating the consequences of drought and contributing to urban cooling.

The sub-concept 5 takes UA as “rurban” living space. Here the perspective of the inquiry is directed towards the transformation of agriculture as living space. UA is in the first instance the carrying-out of agricultural production in an urban context but at the same time it describes the living space of one part of the population. These people make their living through their permanent activity in the space, in the landscape. This means for many of them that they live and work in a rural sphere within the urban. This also means that UA creates a new green urban infrastructure that is – contrary to parks – multifunctional inhabited. The former rural form of living therefore becomes an integrated factor in urban development, generating “the rurban” as a new urban milieu (with specific spatial, functional and social interconnections) and the “rurbanite” as a new form of living (in the sense of farmers who adapt an urban lifestyle). As a result, UA does not mean an anti-urban attitude of the rural such as we know from the large western urban conurbations of the last centuries, but instead new coexistences and synergies of the rural and the urban for a sustainable city. This “crossover” creates new forms of coexistence and allows on the long term new synergies, values, living strategies and spatial structures to emerge.

Therefore, the local stakeholders are involved in four large pilot projects which try to validate these sub-concepts addressing key questions on new potentials synergies between city and agriculture in different parts of the Casablanca metropolitan region.

URBAN AGRICULTURE CASABLANCA - PILOT PROJECTS
<p>PP1 - Industry and Urban Agriculture, Aéroport Airport Mohammed V / Province of Nouaceur: Re-use of waste water for agricultural purposes and improving the aesthetic dimension of industrial plants.</p> <p>PP2 - Informal Settlements and Urban Agriculture, village and school in Ouled Ahmed / Province of Nouaceur: installation of a green school garden to improve children's nutritional status and to teach them more about the opportunities to grow agricultural products in urban settings.</p> <p>PP3 - Peri-urban tourism and Urban Agriculture, Ouled El Maleh valley in Chellalatte / Préfecture of Mohammedia: Synergies between agricultural production and short distance recreation and tourism, conservation of peri-urban multiple open spaces and natural heritage.</p> <p>PP4 - Healthy food production and Urban Agriculture, Pedagogical organic food farm in Dar Bouazza / Province of Nouaceur: Developing an "organic culture / healthy lifestyle" approach towards modern food production, economic solidarity partnership between food producers and urban consumers.</p>

Table 3 Urban Agriculture Casablanca - Pilot Projects Overview
Source: Urban Agriculture as an Integrative Factor of Climate Optimized Urban Development, Casablanca Evaluation Report (2010b)

The project has shown initial success. Urban agriculture is regarded as a fruitful strategy for spatial development in Casablanca as the new preparatory land-use plan for the Casablanca region ("Schéma directeur d'aménagement urbain, SDAU"), adopted at the end of 2008, includes agriculture as a land-use category and links it with open space objectives.

For the purpose of this Master Thesis research, focus will be given on the investigation regarding the possibilities in converting open spaces and agricultural land into productive, multifunctional, and green infrastructure for the city by establishing a variety of agricultural cultivation and gaining co-benefits through the exploitation of the economies of synergy (Vreeker *et al.* 2004, p.289). Therefore, it is needed to understand

the most recent concepts regarding sustainable urban development based on multifunctional land use.

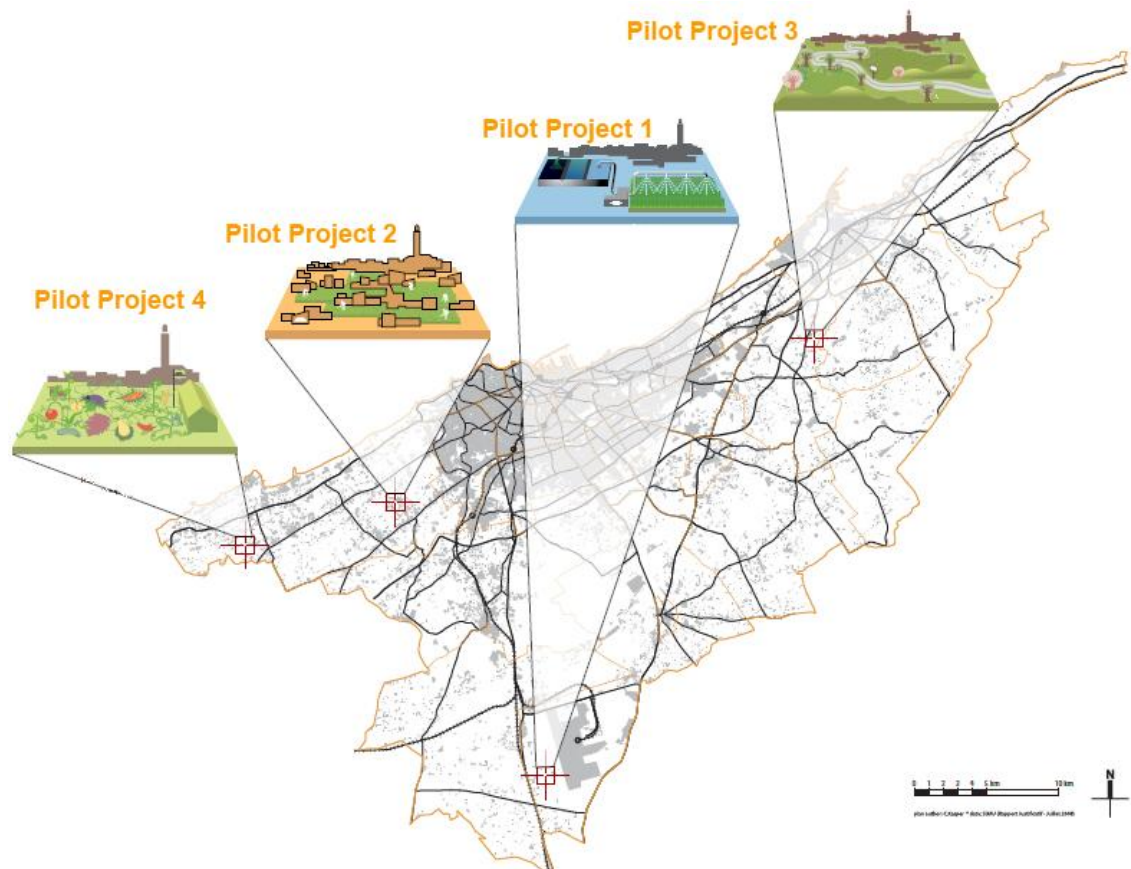


Figure 7 Location of the UAC four Pilot Projects in Casablanca, Morocco
Source: UAC (2010a) Plan author: C. Kasper Data: SDAU

2.5 Multifunctional Urban Spatial Systems and Continuous Productive Urban Landscapes (CPULs)

Multifunctional land use recently re-emerged as a spatial planning principle aiming to deal with land scarcity by intensifying its use, being defined as the combination of different socio-economic functions in the same area, meaning the implementation of more functions in a determined place in a determined period of time (Priemus *et al.* 2004, p.270).

Vreeker *et al.* (2004, p.290) provides a general overview of multifunctional land use as a planning concept response to the last century spatial planning approach based on segregation of functions, together with the rapid growth of automobile which resulted in a low density and dispersed development, often referred to as urban sprawl. The authors argue that the latest trends in planning (New Urbanism, Smart Growth, Growth Management and Multifunctional Land Use) propose to reduce urban sprawl and promote spatial and environmental quality through mixed and compact land use.

The main goal of Multifunctional Land Use (MLU) is to promote a sustainable form of land use by influencing urban development through increasing density and mixing different land use functions. In current design and planning practice more emphasis is put on the planning concept of multifunctional land use, which is not only concerned with mixed and compact land use, but also focuses on the creation of synergies between the land use functions that are combined (Vreeker *et al.* 2004, p.290).

Land in agricultural use within urban areas can now more than ever be considered a multifunctional space (Giseke *et al.* 2009), nevertheless the coexistence of urban and peri-urban agriculture with other economically stronger land uses can only happen, in the long term and in a qualitatively meaningful manner, when synergies between them exist or are created (Martin Han and Pieschel 2009, p.28). Because of land scarcity and the competition over different land uses driven mainly by their profitability, agriculture may not initially seem like a wise alternative for urban settings. However, agricultural production in close proximity of resources and consumers in the urban environment can take advantage of the wide range of services and benefits that can be provided by agricultural land uses (Lovell 2010, p.2501).

Through the development of attractive synergies between rural and urban spaces with resource efficient water and waste cycles or local economic systems, there could be the configuration of a new space, the working and living environment for a portion of the urban population (Giseke *et al.* 2009).

Besides its economic dimension based on the production, Lovell (2010) presents a framework of landscape multi-functionality which explores other functions of urban and peri-urban agriculture: ecological functions (e.g., biodiversity, nutrient cycling, and micro-climate control) and cultural functions (e.g., recreation, cultural heritage, and visual quality).



Figure 8 Multifunctional Aspects of Urban and Peri-Urban Agriculture
Source: by author (2010) based on (Lovell 2010)

Potentially, urban agricultural land, composed by its ecological, economic and cultural functions, could be specifically developed for sustainable food production and income generating activities, and could equally be designed and equipped to make it attractive for leisure and recreation purposes while conserving the natural heritage. Additional synergies between city and rural areas could be created by the integration of agriculture in the industrial water supply and treatment systems and, finally and most important for this research, the transformation of informal settlements with open space green infrastructures.

Therefore, the Urban Agriculture Casablanca project proposes an investigation over a spatial development of megacities based on “polycentric dynamics”. The current findings of the mega-city research leads to the assumption that within contemporary centers of urban growth the formation of rural islands will be a lasting phenomenon and not a passing occurrence. Such rural islands can, in terms of tactical open space planning, become key spaces in the development of a system of productive urban landscapes standing the immense pressure on land-use.

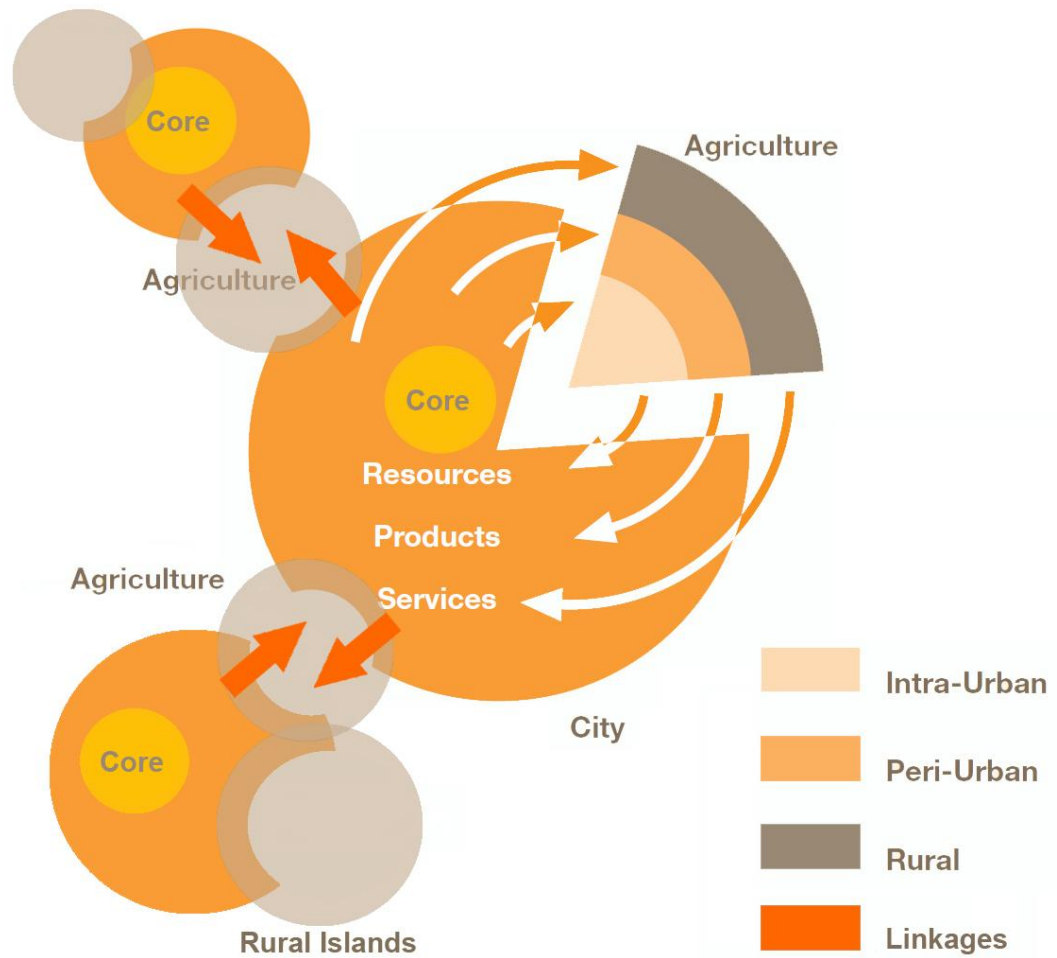


Figure 9 Polycentric Dynamics and Rural Islands
Source: by author (2010) based on Mougeot (2000) and Giseke *et. al* (2009)

Overlaying the sustainable concept of productive urban landscapes with the spatial concept of continuous landscapes, Andre Viljoen and colleagues (Viljoen *et al.* 2005) proposes a new urban design strategy based on Continuous Productive Urban Landscapes (CPULs) defined as open landscapes productive in economical, sociological and environmental terms within an urban design strategy framework. Their assumption is that through the development of continuous open spaces networks along the city, productive food spaces - taking UA as the proposed productive element - could be integrated with other functions to improve the overall character of the urban environment while connecting it to rural areas.

Whilst there are various examples in contemporary urban design of establishing green links or open space similar to continuous landscapes, the aspect of agricultural production, of the rural, will add not only an important new spatial quality to the city, but also socio-economic and environmental qualities (Viljoen et al. 2005, p.11).

As described by the authors, these spaces could be **environmentally productive** dealing not only with local food, but also with issues such as greenhouse gas (CO₂) reduction, improving air quality and air humidity, noise filtering and biodiversity. They could also be **sociologically productive**: their urban concept will involve, amongst others, cultural, educational and leisure activities, shopping habits or diet and health concerns. Last but not least, they could be **economically productive**, provoking new strategic socio-economic thinking and changing local employment and product–cash flow patterns (*ibid.* p.15).

Exploring similar propositions and using elements from such planning approach (Multifunctional open spaces and Continuous Productive Urban Landscapes), the main assumption of the UAC project is that an urban regional open space system based on UA could be a possible response to the change spatial patterns and spatial sprawl in polycentric urban growth centers matching a conscious integration, in terms of urban development planning, and creating synergies for urban-rural linkages (*UAC 2010b, p.1*).

2.6 Land Governance and Property Rights

Land is a scarce resource in the urban environment and under the light of rapid urbanization, as an essential input for production and consumption, competitiveness is generated over it. Therefore, the urban land market is extremely complex and subjected to geographic, economic, demographic, political and social forces (Rodenburg and Nijkamp 2004, p.274), accordingly, the interaction between these forces determines the spatial organization of urban and rural areas.

Commercial value is increasingly added to areas where land is in greatest demand for residential, industrial or business use. Nevertheless, although an important livelihood strategy, agriculture is an economically “weaker” form of land use in urban development, and therefore often exposed to manifold spatial or temporal restrictions (Martin Han and Pieschel 2009). As mentioned before, agriculture is a basis for economic growth in developing countries and remains a fundamental source of livelihood, subsistence and food security for rural and urban people, thus secure land tenure for farmers and agricultural production is extremely important (UN-Habitat 2008b).

If well planned and integrated into urban design, urban and peri-urban agriculture can support the sustainable management of vacant and risk-prone land and flooding areas by applying specific production techniques and optimizing productive use of lands not suitable for construction, contributing to cleaning of the city by turning derelict open spaces and vacant land into productive zones.

Smit and Nasr remarks that every city has under-utilized land that could be useful for agricultural production, these surfaces include those areas that are not suited for built-up uses (e.g. steep slopes, wetlands, flood plains); idle public and private lands; land that can have an interim use, community lands, and household areas (Smit and Nasr 1992, p.147).

Following the same approach, Mougeot suggests that urban and peri-urban agriculture must be viewed as one tool contributing to sustainable urban development (Mougeot 2006, p.10). In this sense, to identify, define and activate green fields and open spaces for UA purposes could be a coherent spatial device tool for managing environmentally and socially more sustainable urban growth.

Anyhow, the long-term continuity of agricultural production from a given piece of land in urban and peri-urban agriculture remains uncertain, because the opportunity cost of using it for agriculture does not compete with the demand for industrial,

housing, and development purposes. The right to use land for urban and peri-urban agriculture is sometimes not well defined, especially when it is practiced on vacant municipal or encroached lands. This uncertainty can create conflicts and lead to underinvestment as well as exploitative production practices and degradation of the land (WorldBank 2005, p.186). Therefore, planning the use and exploitation of these spaces for urban and peri-urban agriculture raises issues of legitimacy, land access and tenure, and requires recognition of UA as an urban land use to be included in urban development plans.

Land tenure is defined by Payne (2001, p.416) as the mode by which land is held or owned, or the set of relationships among people concerning land or its product, entailing a variety of legality degrees, according to the current legislative framework. The UN-Habitat (2008a) also observes that land tenure may have different forms and degrees of formality, as some are held by individuals while others are held collectively by a group, being subjected to time limitations as well as restrictions on how the land can be used, sold or transferred.

Tenure security is partly a matter of perception and, in addition to formal titles, it can be achieved through clear, long term rental contracts, or formal recognition of customary rights and informal settlements with accessible and effective dispute mechanisms. Payne (2001) classifies and characterizes different types of land tenure: customary tenure, private tenure, public tenure, religious land tenure systems and non-formal tenure categories.

In customary land tenure systems, as land is often regarded as sacred and the interest of future generations must be protected, the decisions are taken by the communities' leaders according to its social and economic needs. Although competition for land is present mostly in-between its members, along the time it turns subject to commercial pressures that takes advantage of the weak bounds of informal agreements between the owners, which consequently may only benefit members of this group. The religious land tenure system is very dependent and interrelated to the values and traditions of a given religion which influence and guide the decisions by the owners over land.

Private tenure concerns about relatively unrestricted use and exchange of land with the intention to ensure its most intense and efficient use generating profit for its owner. While public tenure, otherwise, seeks to enable all sections of society to obtain access to land under conditions of increasing competition. For Payne (2001) public

tenure has achieved higher levels of equity but rarely achieved high levels of efficiency due to bureaucratic inefficiency or patronage and *clientelism* systems.

“For the urban poor there is probably no more fundamental problem than their inability to access decent, secure land for even the most minimum housing needs. Access to land is an inseparable ingredient in a poor household’s ability to survive, earn, thrive and lift itself out of poverty. Aside from being a basis for shelter and access to services, secure land rights can act as a safety net in times of hardship, and provide financial security”
(UN-Habitat 2008a)

Finally there are the informal tenure categories with a wide range of legality or illegality degrees. The reinforcement of market-based statutory tenure systems emphasizes individual rights, forcing the urban poor to engage into various non-formal solutions such as squatting, unauthorized subdivisions and unofficial tenure agreements.

In many developing countries the informal tenure system represents the most common urban tenure category and accommodates the majority of lower income households. Unlimited expansion and an elitist urban planning system exacerbates the socio-spatial segregation, excluding the urban poor from the legal city and promoting the illegal growth in the periphery, usually in squatter public and private land on environmentally protected or risky areas, and consequently committing natural resources and increasing public spending on infrastructure extension. Major factors to consider are the optimal use of land and the distribution of land under informal development (Martin Han and Pieschel 2009, p.27).

Therefore, Payne observes that is essential to assess the full range of existing tenure systems and submarkets before any intervention in land markets, while any attempt to develop appropriate tenure policies needs to take into account informal and unauthorized tenure systems. Payne (2001, p.416) also remarks that rights may cover access, use, development or transfer and, as such, exist in parallel with ownership. Additionally, it can involve combinations of various elements such as the right to occupy, enjoy and use; cultivate and use productively; restrict or exclude others; sell, purchase, grant or loan; rent and sublet.

The UN-Habitat strongly remarks that land is increasingly being seen as a commodity and not as a common good whose use must be carefully regulated for the good of all citizens, and such shift has had huge implications on how public and private land is used and how its use is being regulated by governments (UN-Habitat 2008a).

Land governance most common definitions highlights it as the process by which decisions are made regarding the access to and use of land, the way land is managed, land use plans and regulations are prepared and implemented and how land is taxed (Wehrmann *et al.* 2009). Political contexts, legal frameworks and land ownership systems are all subjects related to land governance; thus, it also includes power and the political economy of land.

Decision makers face difficult choices in how to resolve competing needs such as whether to use scarce land for housing, industry, parks or keeping the cultural heritage of a particular place (UN-Habitat 2008a). The manner in which decisions regarding land use are implemented and conflicting interests are managed and reconciled determines the quality of land governance.

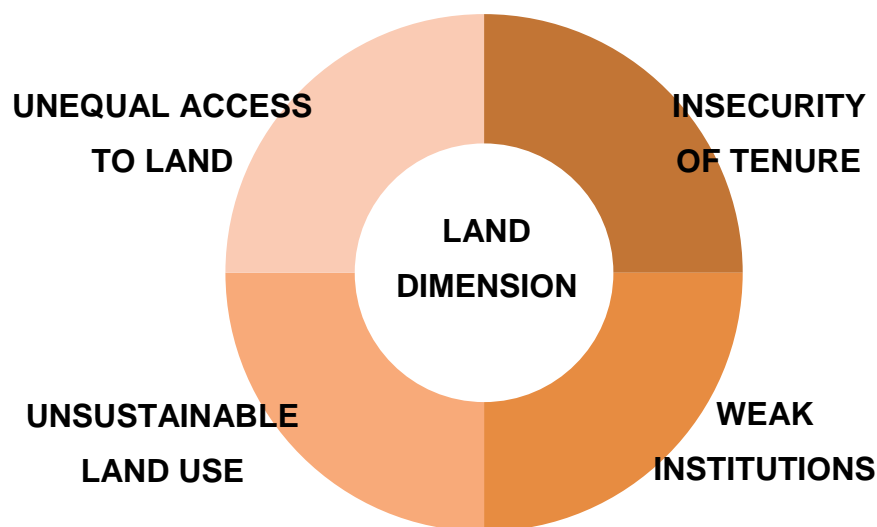


Figure 10 Land Dimension
Source: by author (2010) based on Wehrmann *et al.* (2009)

It is also governance which decides whether urban citizens can have access to land administration information (or whether they have to pay bribes) and if decisions about land are transparent. A lack of reliable updated public records of land rights, ownership and transactions are a barrier to develop an effective and transparent land market which reflects weak land governance.

As a consequence, speculative land markets produces many other effects as widespread vacant land, environmental degradation, widespread gated communities and precarious informal settlements (Fernandes 2007a). The urban poor are particularly vulnerable to the effects of weak governance as they lack the ability to protect their rights to land and other natural resources. Good land governance can ensure that rights in land and natural resource are recognized and protected. By doing so, it helps to reduce hunger and poverty, promotes social and economic development and contributes to more sustainable urbanization (Wehrmann *et al.* 2009). In addressing land governance, UN-HABITAT (UN-Habitat 2004, 2008a) adopts the following principles:

- Government / national leadership are crucial, as is empowerment and capacity building at various levels in society.
- Changing policy or laws is not enough to resolve conflicting interests and to change discriminatory, corrupt and inefficient performance of land institutions.
- Only sustained, long-term interventions can resolve land problems and deliver secure land rights for all.
- Gender and minority groups must be handled as specific issues of concern.
- The interests of multiple stakeholders in land and multiple visions of land development must be reconciled.
- Outside agencies and development partners must coordinate strategies to engage in and support national processes.

SECTION 3
CITIES WITHOUT HUNGER AND COMMUNITY
GARDENS PROJECT

3 CITIES WITHOUT HUNGER AND COMMUNITY GARDENS PROJECT

3.1 Introduction

The main objective of this case study research is to identify, analyze and present a relevant project that promotes UA in close relation to informal settlements, in which the social, economical and environmental benefits of urban and peri-urban agriculture can be explored and discussed.

The research at hand also deals with different subjects intrinsic to this topic such as land management and governance aiming to contribute for the discussion around the inclusion of UA in public policies frameworks and the further conceptualization regarding urban and rural in developing countries.

This chapter is designed with an overview of the city of São Paulo and it's far East Zone, based on a discussion regarding the relations between rural and urban areas resulting from urban sprawl and the current de-industrialization process of the metropolitan region. Later the *Cities without Hunger and Community Gardens* project is presented as an initiative to introduce a sustainable alternative in connection with food production in disadvantaged communities contributing to improve social, environmental and economic relevant issues by implementing farming activities and community gardens in idle and vacant land and creating a micro-scale economic system between informal settlements inside the city and agriculture land in its peri-urban area.

3.1.1 São Paulo

São Paulo, capital city of the state of São Paulo (Brazil), is home for 11.037.593 inhabitants, according to the most recent estimative, with its metropolitan region - São Paulo Metropolitan Region (RMSP) - reaching approximately 19,9 million people (IBGE 2009a) within a 39 municipalities urban network.

SÃO PAULO	MUNICIPALITY	METROPOLITAN REGION
POPULATION	11.037.593	19,9 million
AREA (KM²)	1.525	7.944
ADMINISTRATIVE UNITS	31	39

Table 4 Population, Area and Administrative Units - São Paulo and its Metropolitan Region

Source: IBGE (2009a), Urban Age Research (2009)

Intense flows of goods, services and capital, and significant population displacements seeking for jobs, study, access to services and leisure, occurs between cities located within a radius of approximately 150 km around São Paulo in such way that, based on these strong economic and demographic ties, one can identify this set as a macro metropolis or a metropolitan complex, where about 70% of São Paulo's state population lives (IBGE 2009a).

Therefore, São Paulo is a privileged case study as it offers the densest urban area in Brazil, as well as a strong interaction between remaining rural areas and urbanized ones. Whereupon, rural areas are mixed and joint to the urban network without changing its characteristics completely, thus presenting diverse ways for using its space (Fernandes 2008, p.25). The focus of this research relies on the eastern side of the city, an area that is being increasingly taken by urban expansion, and consequently, presents a sharp fall in agricultural activities.

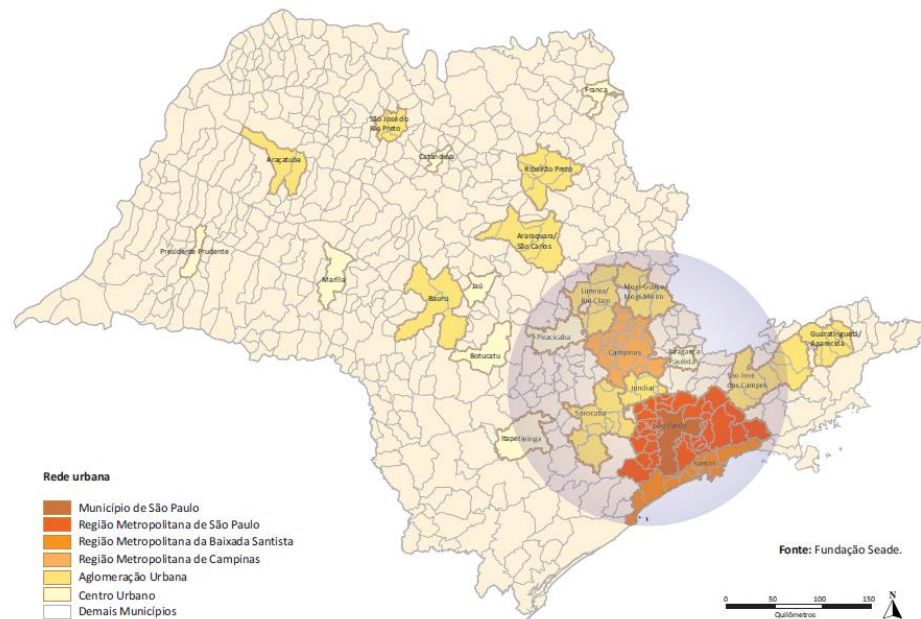


Figure 11 São Paulo - Macrometropolitan Region

Source: Fundação Seade

São Paulo was established in the 16th Century as a Jesuit mission, and its first period of intense growth and fast urban development, around 1880, was a consequence of territory expansion fostered by coffee cultivation and other agribusiness exporting activities. The creation of railways linking the city to the main harbor in *Santos* promoted intense immigration and internal migration processes generating a high demand for housing estates, which would be extreme during the late Brazilian industrialization process between 1950 and 1980 characterizing a second stage of intense growth (UrbanAge 2009, p.4).

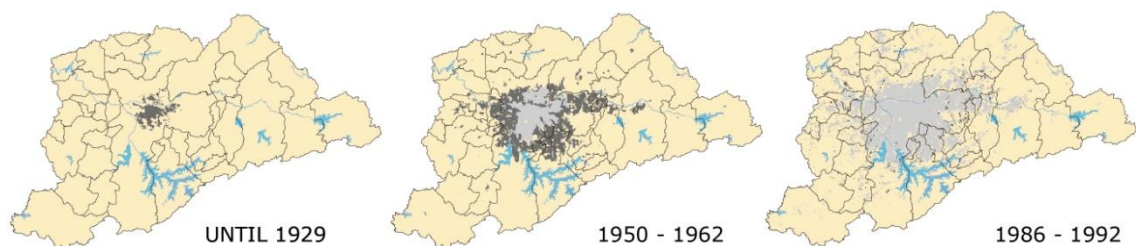


Figure 12 Urbanized Area Expansion – São Paulo Metropolitan Region

Source: Empresa Paulista de Planejamento Metropolitano – EMLASA

This process had great impact in São Paulo and some of its neighboring municipalities (ABC Region: *Santo André, São Bernardo and São Caetano*) driving the city's growth and determining the structure of a metropolitan area that commands broad and diverse urban network, hierarchically structured from the capital.

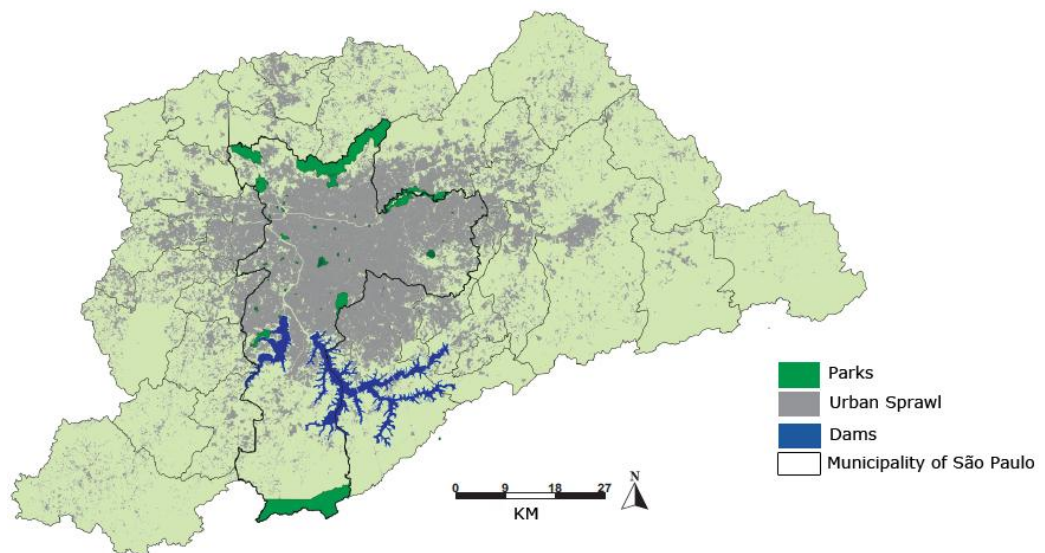


Figure 13 Urbanized Area of São Paulo Metropolitan Region (2003)

Source: Empresa Paulista de Planejamento Metropolitano – EMPLASA

In São Paulo urban growth came tied to the 50s and 80s industrialization context, with very few involvement of the public sector in its organization and regulation. In this context there was an intense migration process (rural-urban), mainly from the northeast region of Brazil, leading to an urbanization pattern in which almost no investment in infrastructure existed to support it. As remarked by Iglecias (2002, p.51) there is significant literature on the subject of rapid growth in RMSP during the twentieth century, developed mainly by social scientists and São Paulo's city planners. In general, studies and reflections on the theme link the urbanization process to a discriminatory model (Kowarick 1994; Maricato 1996; Santos 1990; Singer 1975).

This model of growth created a city divided between a small formal center, where the market happens and acts, and a huge urban share based on informality and subjected to socio-spatial exclusion with no accessibility to infrastructure and public services (Ferreira 2003b, pp.246-248). The real estate capital was benefited not only by public investment and by land subdivisions and land use laws, but also by the possibility of expanding the areas outside the regulations created through illegal housing lot makers, whose infra-structure was made with public funds (Silva 1997, p.72).

Therefore, urban segregation in RMSP was also fostered by associations between public and private sector in the development of urban infrastructure as a stimulus to speculation and not to democratize the city (Maricato 2000, p.157).

Some research explores more specific issues and show, for example, how since the first decades of industrialization the provision of housing for the working classes was quite problematic, forcing them to develop strategies that resulted in self-built informal settlements and illegal subdivisions (Bonduki 1994; Silva 1997). Other studies demonstrate the strategies developed by elites to isolate themselves from lower classes, creating differentiated and unique social spaces in the metropolis, followed by the abandonment of such spaces and its reinterpretation by the low income classes in their communities (Ferreira 2003b; Frúgoli 1998; Rolnik 1994).

As observed by different authors (Rolnik 2001, p.47; UrbanAge 2009, p.1) after the 80s São Paulo's economy went through a de-industrializing process, phenomena that caused a shift in its balance to the services sector which also led to a change in São Paulo's economy geography.

Therefore, changes in the pattern of urbanization were inevitable. New urban fabric fragments came to coexist with remaining fragments of the first phase of industrialization. Large commercial enterprises replaced old industrial sheds, advanced services centers were installed in neighborhoods where the road infrastructure did not support the impact of new transport flows, informal settlements persisted in the urban fabric, some of them lifted to the category of consolidated districts (SEHAB 2007).

The city's central business district has gradually moved to the south west over the past century, from the old central district around *Praça da Sé*, to *Avenida Paulista* and *Jardim Paulista* district, and more recently to the new high-value business and residential developments alongside the river *Pinheiros*. This has left the central district depopulated. As the centre has shifted, informal settlements have emerged, both in pockets of occupied land near the city centre, and around the periphery of São Paulo, where they also exist alongside large social housing projects like *Cidade Tiradentes*.

At the same time, the pattern of extensive occupation and low density, which increased the outskirts of the city along the axis of the radio-concentric road structure, made it possible for informal settlements to reach environmentally protected locations, for example, on the banks of the southern reservoirs that are crucial to São Paulo's water supply, or over the region called *Cinturão Verde* ('Green Belt'), the remaining rural and agriculture areas located, thereby creating enforcement dilemmas for politicians and policy makers.

3.1.2 Not Rural or Urban: The Peri-Urban Interface

Several authors dealing with rapid urbanization process in Brazil, usually based on population growth obtained through censuses or surveys, affirms that since the 70's the country presents a larger urban population than rural, exposing an accelerated growth process: in 1960 the country had approximately 31 million inhabitants, 44.7% of the population was urban, 55.3% rural; in 1970, 55.9% were urban, and 44.1% rural; in 2000, 81.2% urban, 18.8% rural and the country had about 169.5 million inhabitants according to data by the *Ministério das Cidades*.

Nevertheless, according to the 2001 Census by Instituto Brasileiro de Geografia e Estatísticas (IBGE), the Brazilian Institute of Geography and Statistics, the rural population of São Paulo has grown 166% in the decade between 1991 and 2000, as in 1991, 233.000 lived in rural areas of São Paulo city while in 2000 that number reached 620.000 inhabitants. These figures suggest an interesting gap regarding the definitions of what is considered rural and what is considered urban.

This movement has happened mainly in peripheral areas of RMSP, which, despite still being considered rural by the municipality and by IBGE's definitions, many of these areas are occupied by informal settlements and irregular land subdivisions. This means that this urban population is occupying a rural area, but who have lost this characteristic, in other words, the urban population is expanding the city's boundaries, in areas which are still considered rural by policies and laws, shaping a space of difficult conceptualization, neither urban or rural.

YEAR	POPULATION	URBAN	RURAL
1940	1.326.261	1.258.482	67.779
1950	2.198.096	2.052.142	145.954
1960	3.781.446	-	-
1970	5.924.615	5.872.856	51.759
1980	8.493.226	8.337.241	155.985
1991	9.646.185	9.412.894	233.291
2000	10.434.252	9.813.187	621.065

Table 5 São Paulo's Urban and Rural Populations in different years

Source: IBGE

Although, according to recent regulation provided by Plano Diretor Estratégico (PDE) - Strategic Master Plan - in rural areas one cannot make real estate occupation, in practice this has been happening for several decades already. This is still regulated by the Urban Land Subdivision law from 1979, Federal Law No. 6766, authorizing municipalities to promote the legalization of illegal subdivisions. According to Fernandes (2007b) this law created the vague concept of “specific urbanization” implying the possibility of partly treating some specific situations of land subdivisions with different criteria from those applied generally. Which in theory could contribute to the recover such excessive profit obtained by the private sector, but in fact never occurred, as it is through this law that the State allows urban sprawl by giving the private sector the possibility to handle and guide urbanization (Santoro and Bonduki 2009, p.3).

Fernandes (2008) observes that nowadays rural areas of São Paulo no longer presents solely agricultural activities, instead it is heavily occupied by non-agricultural uses that provides a favorable scenario for property speculation, idle vacant land and leisure appealing services to contrast the bustle of the city. In addition to that, changes from the process of rural urbanization can be seen where agricultural production is impaired by transformation, without planning, of farmland into urban lots.

The definitions of urban and rural populations are most commonly based on technical issues such as size of locality, number of population and economic activities carried out by this population. In Brazil it is the City Councils that set the official boundary between urban and rural areas of their territories through the Law of Urban Perimeter. According to IBGE it is considered urban the population that lives within the city limits of each municipality. Such definition is one important criterion that influences the prioritization of public and private investments in rural or urban areas, and as the decision is made by the City Council, it is subjected to political conveniences and tax policies.

In a research developed and published in 2003, Caiado analyzed different data regarding urban occupation in rural areas in all municipalities of São Paulo state, such as settlements and irregular subdivisions without approval, lots approved by special and exceptions on law, major leisure and industries facilities and conurbation processes with other cities. According to the author’s analysis, local laws and current definitions regarding urban and rural cannot alone explain the various processes of production integration, functions integration and physical integration happening nowadays,

reflecting the need to seek new instrumental analysis to represent the complex reality of the metropolitan urban society.

In order to define the current rural context in metropolitan areas Caiado (2003) highlights the need to consider other non-agricultural rural activities, such as accommodation, tourism, leisure and other services, environmental preservation activities, and a set of intensive manpower activities, such as floriculture, horticulture, fishery, farming and raising small animals seeking specific markets,

Non-Agricultural Occupations in Rural Areas
<ul style="list-style-type: none"> - Activities linked to agricultural production, especially the direct production of goods and agricultural services, and indirectly related to its marketing, processing and transportation; - Activities derived from the consumption by rural population, including the production of goods and non-agricultural services, from both rural and urban areas and related additional services; - Activities resulting from the availability of skilled labor surplus in rural areas, which includes work at home and complementary work of those engaged in other paid non-agricultural activities; - Expansion of public services in rural areas; - Demand for land for non-agricultural use by industries and undertakings services providers; - The low-income population's demand for urban land for its self-built dwellings in rural areas located near cities; - High-income urban population's demand for recreation and / or second residence areas, as well as for services related to them; - Consumption of non-agricultural products and services by urban population, which consists of goods and services conducted in rural areas (crafts, eco-tourism, etc.). - New agricultural activities, seeking specific market niches.

Table 6 Non Agricultural Occupations in Rural Areas

Source: Caiado (2003)

Indeed uncontrolled growth in Brazilian cities is happening at the rural / urban interface based on the informal mode of urbanization described by Ananya (2005), beyond the limits prescribed by official documents and laws. An expansion that has occurred both through low income informal settlements and poor neighborhoods expansion, and the emergence of many high-income gated communities looking for better quality of life in less dense areas away from urban centers. Such process has fostered the emergence of several non-agricultural activities in rural areas, turning its characterization into a very challenging and complex issue.



Figure 14 Major leisure facilities in São Paulo's Peri-Urban area
Source: Google Earth 2010

3.1.3 Land Market

The finite and scarce aspect of land is a feature that aggravates conflicts between local elites. In their search for large areas for profitable land, entrepreneurs must create new strategies to compete with others. As availability of large and cheap areas becomes increasingly rare, infrastructure available becomes a differential factor and the expansion moves to the peripheries of the city or towards other cities of the metropolitan region.

In article by Carolina Matos published in the newspaper *Folha de S. Paulo* on September 13th (2010), Ubirajara Spessotto, director of *Cyrela Brazil Realty* – major residential real estate developer in Latin America and leader in the residential sector in São Paulo – affirmed that municipalities within a 100 km radius from São Paulo are the focus of the company's strategy in the super economic - unit up to R\$ 110.000 (USD 65.108); and economic - up to R\$ 200.000 (USD 118.380) segments. These municipalities present high demand, good infrastructure and land prices still economically affordable for new developments. The strategy of *Cyrela* is to reach the

end of 2012 with half of their business anchored in these segments that today represents 32% of contracted sales.

A market research conducted by *Secovi*, the legitimate representative of forty thousand real estate companies and condominiums of São Paulo, revealed that from 4.786 units launched in August 2010 among the municipalities of RMSP, only 34.1% are located in São Paulo (1.633 dwellings), in 2004 this percentage was 83%. This same behavior is repeated in terms of home sales, since the city of São Paulo participated with 42.8% in total of 3,825 homes traded in the metropolitan region.

In the syndicate's analysis this unquestionable decline in participation from São Paulo and the leakage of entrepreneurs to other municipalities is caused by a set of difficulties in carrying out economically feasible developments in the city, such as: expensive prices for land in good locations, lack of infrastructure in the periphery and also the urban legislation in force that has several restrictions and does not facilitate further negotiations.

Although these figures show a smaller share of São Paulo in the real estate market, this share still is relevant. As shown by Fig. 14, the new units launched in August 2010 are mainly concentrated in the East Zone of the city, traditionally recognized as a supplier of food as it keeps the remaining agricultural production properties in its peri-urban limits.

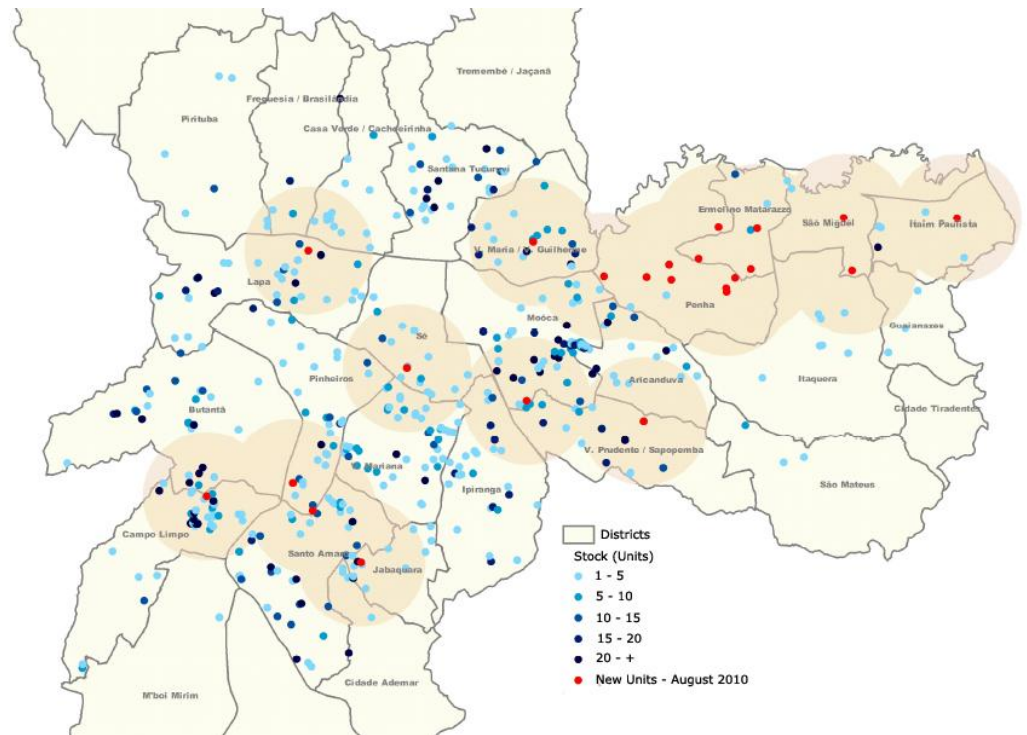


Figure 15 Real Estate new units – São Paulo

Source: Adapted from Embraesp – GeoSecovi (August 2010)

José Tadeu de Campos, Land Manager of *Plano e Plano* one of the largest real estate developer company in São Paulo, affirmed that São Paulo's Strategic Master Plan (PDE) is the main responsible for such market shift as it imposes very strict restrictions regarding land use in certain regions of its territory (see appendix AB1 - interview with Mr. José Tadeu de Campos, 16.09.2010). As an example, old industrial regions that currently do not present such use anymore, but its surroundings are all inhabited, and fitted with infrastructure.

The reduced share of metropolitan industry in the state of São Paulo industrial strength, 64% of the total in 1980 to 52% in 1990, and the city of São Paulo, passing from 36% to 22% over the same period is a sign of de-industrialization (Rolnik 2001, p.47). Industries have left these regions for logistical reasons as outside São Paulo the rental value paid by industries are lower and the flow of production is easier.

Within São Paulo's districts many old sheds are abandoned then constituting degraded brownfield regions, nevertheless the PDE still classifies such areas as industrial rendering impossible its edification and development. For the real estate market the PDE should be revised allowing residential use in these regions inside the city so the urban expansion towards agriculture land in the peripheries or over the dams and environmentally protected areas could be avoided.

3.2 Urban and Peri-Urban Agriculture in São Paulo

3.2.1 Cities without Hunger and Community Gardens Project – Early Years and Establishment

In 1998, Mr. Hans Dieter Temp, Business Administrator with technical course in Agricultural and Environmental Policies at the Tübingen University, Germany, (creator and coordinator of the project) moved to the East Zone of São Paulo and observed the existence of a great amount of idle private and public land. Some of those were private land involved in matters of inheritance litigation, while others were public land owned by the Municipality, *Petrobras*, *Transpetro*, *Eletropaulo*, *Incra*, *Cohab* or other government institutions.

These areas with no particular use represent a great liability for the communities in the city environment as well as for the municipality, given that, as a result of their lack of use, they become clandestine waste and debris dumps, plus generating a favorable setting for illegal and disorderly occupations and transformation of peri-urban spaces into ghettos and informal settlements.

In 1999, residing at the site Mr. Temp decided to transform some degraded areas close to his house into urban gardens. The main idea was to improve the urban aspect of the neighborhood, which would bring environmental improvements to the local community. No social focus was involved so far. However, the commercialization of production and consequent income generation turned the project into a self-sustaining activity.

In this early phase, reports published in newspapers and magazines in 2003 remarking the success of the venture and a favorable scenario for the implementation of public policies to reduce poverty, called the attention of the Municipality that was then interested in the project. During this period, several gardens were developed in different neighborhoods and the *Programa de Agricultura Urbana e Peri Urbana* (PROAURP), the municipality's urban and peri-urban agriculture program and its regulation was approved by the Law 13.727. This was a milestone, as it institutionalized and made possible the legal grounds for legalizing UA practices and initiatives in urban areas. However, budgetary difficulties and inherent problems in bureaucratic administrative procedures of government agencies indicated the need to seek for alternatives to develop the project more quickly and efficiently.

In January 2004, was established then the NGO *Cities without Hunger and Community Gardens*, an autonomous and nonprofit entity. The NGO aimed to create a sustainable urban development project through the creation of gardens. Communities were involved in activities in a participatory process, where the creation of job opportunities, vocational training, capacity building and income generation were the main targets.

For the viability of the activities held by the NGO, several public and private institutions became contributors. Currently the *Cities without Hunger and Community Gardens* project has the following sponsors and donors: Petrobras, IAF-IAF Development (United States); Ecourbis Ambiental S/A; the Japanese Consulate in São Paulo, New Zealand Embassy, Australian Embassy, Embassy of Switzerland; Betterplace - Berlin / Germany; HSBC Institute - São Paulo; HSBC Bank - London, Deutsche Bank in São Paulo and Syngenta Seeds - Seeds, Stihl Farm Machinery; Solpak - Packaging and Plasticulture. In August 2010 the project was selected as a winner of the Dubai International Award for Best Practices.

3.2.2 The East Zone – Urbanization Process

The *Cities without Hunger* gardens are mostly deployed in available land that is idle or vacant in the East Zone of São Paulo nearby target communities. This region was sparsely populated during the 30s and later occupied by different kinds of settlements that scattered along the old road linking São Paulo to Rio de Janeiro, through the *Vale do Paraíba* region (Rolnik 2001, p.44).

This shaft was reinforced with the implementation of former *Central do Brasil*, the central railroad, by the end of nineteenth century affecting urban areas close to its axis (*São Paulo, Guarulhos, Osasco, São Caetano do Sul, Santo André and São Miguel Paulista*). Until then, these places conserved colonial settlements aspects, inhabited by a considerable number of agricultural farmers, workers, civil servants and traders.

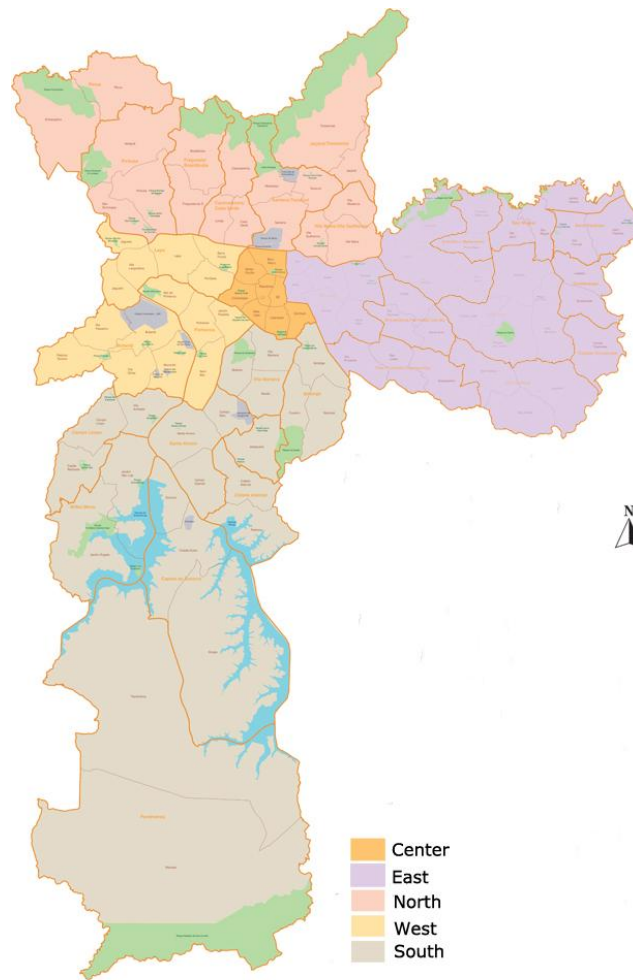


Figure 16 Administrative Regions São Paulo (2002)

Source: Prefeitura Municipal de São Paulo (SEMPLA 2004)

Along this important growth vector a belt of industries was implemented, setting a strong barrier between the city elites and peripheral occupation constituted of housing for workers built in squatter settlements, illegally self-built houses and housing projects developed by the government. This population was composed by a high number of foreigners and their descendants originating from Portugal and Spain - in large part, workers - and farm workers, mostly originating from Japan. According to Souza (2003) the dominance of Japanese in the region, beginning in 1922, had a great influence on the local economic activity through the production of fruits and vegetables - this production center was called *Colony Itaquera*, and "*could be considered the most important agricultural center of the region*" (Azevedo 1945, p.111).

Characterized by its rural aspects, which was preserved by isolation from the central area of the city, its typically residential function was disseminated by residential low density villages that appeared more or less close to the railway. It is important to recognize though that the industrialization or the transportation axes were not the only

promoters of urban expansion and population growth in this region, but also the establishment of several land subdivisions and residential estates.

The emergence of numerous suburban land subdivisions was a striking feature all over São Paulo between 1915 and 1940. The lack of supervision and control by the government in the housing sector during this time resulted in the expulsion of some residents out of town to peripheral areas, meanwhile the real estate sector finds a new market in the periphery promoting population growth and disordering of allotments (Souza 2003).

During the 60s and 70s another major factor that fostered the expansion to the East was the construction of the highway *Radial Leste* and the East line of the subway, definitively consolidating the East-West direction as the main structural axis of the East Zone of São Paulo and the main connection between the city center and the periphery (Rolnik 2001, p.44).

The pattern of social-spatial segregation continued to be structured from the center to the periphery until the 80s, a model in which middle and upper classes were concentrated in neighborhoods with infrastructure, and workers in the peripheral degraded areas. The “outlaw” city, the periphery that housed thousands of poor people and migrants, continued to be excluded from the plans, policies and public investments (Maricato 1996).

Between 1980 and 2000, the central area lost 230.000 inhabitants (CMSP 2001, p.6). Districts in this region suffered a 30.4 per cent decrease between these years, during the same period the central area’s population density fell from 181.5 to 110.3 residents / hectare, while the density of peripheral districts such as *Sapopemba* rose from 132.6 to 208.8 residents/hectare. The densification process at high rates through formal and informal land subdivisions discouraged the agricultural use of land in the East Zone and consumed part of the green and environmentally protected areas.

3.2.3 The East Zone – Socio Economic Profile

São Paulo's East Zone, given the housing concentration and the non-existence of job-generating programs for its economically active population, stands out as grim sprawl of poverty and violence in the municipal context. Though located in the RMSP, poor social conditions, precarious road access and low economic activity keep it segregated from the rest of the metropolis.

Some 3.3 million people lives in the East Zone, a region characterized by a 0.478 average HDI, a 32-percent child mortality rate and an undesirable crime rate of 76.3 cases per year for every 100 thousand inhabitants (SEHAB 2007).

DATA	SÃO PAULO	EAST ZONE
Inhabitants	19,3 million	3,3 million
HDI	0,841	0,478
Infant Mortality	12/1.000 born	10 to 17,8/1.000 born
Average Income (R\$)	1.358,00	937,00
Unemployed Population over 16 years old (%)	13,23	15,03

Table 7 Socio Economic Profile - São Paulo / East Zone

Source: Lira *et al.* (2009); Nossa São Paulo (2010)

Dwellers of these communities make their living through temporary jobs requiring low or no skills as car washers, housekeepers, mason's hands, janitors, day laborers and so on. However, there is a part of this population that does not have access to these activities and will eventually generate idle manpower, which, combined with institutional weaknesses inherent in the region, eventually gives rise to poverty and violence.

The most recent data by *Secretaria da Habitação* (SEHAB) São Paulo's housing secretariat, reveals that the East Zone presents *favelas* (298), urbanized nucleus (59), irregular subdivisions (384) and irregular housing (15) in a total of 756 precarious informal settlements (SEHAB 2007). It is essential to understand the criteria and definitions used by SEHAB to classify each typology throughout São Paulo's territory as informal settlements will be treated as the various types of settlements described below.

Favela is defined as the occupation of public or private areas given outside the urban laws and edification regulations, mainly chaotic and precarious infrastructure, with buildings predominantly poor and self-built by low-income and socially vulnerable families.

Urbanized nucleus is defined as the former *favela*, which has now 100% of urban infrastructure networks deployed across different housing programs, but that still does not have legal land regularization.

Irregular subdivision is defined as one settlement which marks the existence of a promoter and / or supplier, whose typology and morphology of the division of land use are aimed at single-family and small multifamily, that have been deployed and occupied without prior approval by the responsible public agencies or, when approved or during approval process, deployed in violation of the law.

Irregular housing is defined as one housing project that, despite having been produced by government agencies, does not have legal and registered land tenure.

Tenement is defined collective multifamily housing, consisting of one or more buildings in a single urban lot, subdivided into several rooms leased, subleased or transferred by any means; with various functions performed in the same room, with access and common use of spaces and sanitary facilities, with circulation and infrastructure, in general, overcrowded.

The population living in these areas is formed mostly of migrants from Brazil's poorer northeastern states in search for job opportunity and better living conditions. The bulk of social exclusion encompasses teenagers and middle-aged population, who are most affected by chronic lack of work. Consequently, there is a sociopolitical alienation of this population, which makes it more vulnerable and deprived of conditions for the full exercise of their citizenship.

The *Cities without Hunger and Community Gardens* project is seeking to introduce a sustainable alternative in connection with the production of food in disadvantaged communities with high demographic concentrations in order to attenuate the situation of those vulnerable groups, thus contributing to improve social, environmental and economic relevant issues.

The project's objective is to implement, through a participatory process, farming nucleus that could generate urban opportunities, capacity building for the participants and their dependents, systematic income generation from selling valued added processed goods and the social integration of communities with their environment.

3.2.4 The Gardens – PROMORAR II Community Garden

Currently there are 21 gardens implemented by the NGO with 665 people working in these gardens, among them 213 are men and 452 women. The majority participation of women is due to some different reasons. The most relevant are that usually women living in these communities are more socially vulnerable as it is more difficult for them to access formal jobs, besides that they are more aware and involved with issues regarding the communities' daily life. Whereas men are encouraged to seek formal and stable employment so they can better assist their families while seeing their work in the gardens as a temporary job.

NAME	AREA (m ²)	LAND OWNERSHIP	PERIOD (YEARS)	ADDITIONAL INFORMATION
São Mateus 1	250	Private	7	First garden
São Mateus 2	250	Private	3	Close to Informal Settlement
Bento Guelfi	1500	Private	2	
Dona Maria	800	Municipality	3	
Sapopemba	3500	Private	3	Promorar II Community Garden
Do Pêssego	10.000	Private	3	
SESC	1000	Private	2	
Piscinão Iguatemi	10.000	Municipality	2	Close to Informal Settlement
Dona Maria 2	15.000	Private	2	
Aterro Sanitário 1	3.000	Municipality	5	Close to Landfill
Aterro Sanitário 2	3.000	Municipality	5	Close to Landfill
Dos Fernandes	5.000	Private	3	
Horta Sete Cruzes	15.000	Private	3	Supplier of Seedlings
Do Riacho	10.000	Private	3	
Lourinaldo Freitas	3.000	Private	3	
João Fernandes		Private	3	
Comunidade Zaira	3.000	Municipality	2	Close to Informal Settlement
CEU	3.000	Municipality	2	Close to Informal Settlement

Table 8 Cities without Hunger Community Gardens Profile
Source: NGO Cities without Hunger and Community Gardens Project

For the purpose of this research a field work was conducted in a community (PROMORAR II) served by a garden located in *Sapopemba*, a district of the *Vila Prudente / Sapopemba* sub prefecture region.

Sapopemba was officially founded in 1910 and classified as a district in 1985. The Portuguese immigrants were responsible for the settlement during the first decade of the 20th century, transforming large extensions of fertile land into farms.

SUB PREFECTURE	DISTRICT	AREA (KM ²)	POPULATION (1996)	POPULATION (2000)	POPULATION (2008)	DENSITY (INH./KM ²)
VILA PRUDENTE / SAPOPEMBA	SAPOPEMBA	13.48	271.557	282.054	295.975	21,963.95
	SÃO LUCAS	9.67	145.260	139.469	131.236	13,578.13
	VILA PRUDENTE	9.5	107.671	102.227	93.459	9,842.26
	TOTAL	32.65	524.488	523.750	520.670	15.128,11

Table 9 Vila Prudente / Sapopemba Area, Population along years and Density

Source: Prefeitura Municipal de São Paulo, IBGE, Fundação SEADE

The PROMORAR II community garden activities began in 2007, on a plot of land owned by *Transpetro*, after obtaining the company's authorization. The garden has 3500 m², being the only area in the region that produces and sells fresh vegetables, serving directly the community located in a region that has approximately 30.000 inhabitants in its surroundings.

The methodology used throughout the *Cities without Hunger and Community Garden* project seeks to involve the local community and producers in order to offer them a holistic view of the food chain and to promote autonomy and entrepreneurship by creating self-managed small businesses. The methodology hinges on a four-phase approach: awareness-raising, participatory planning, capacity building and dissemination.

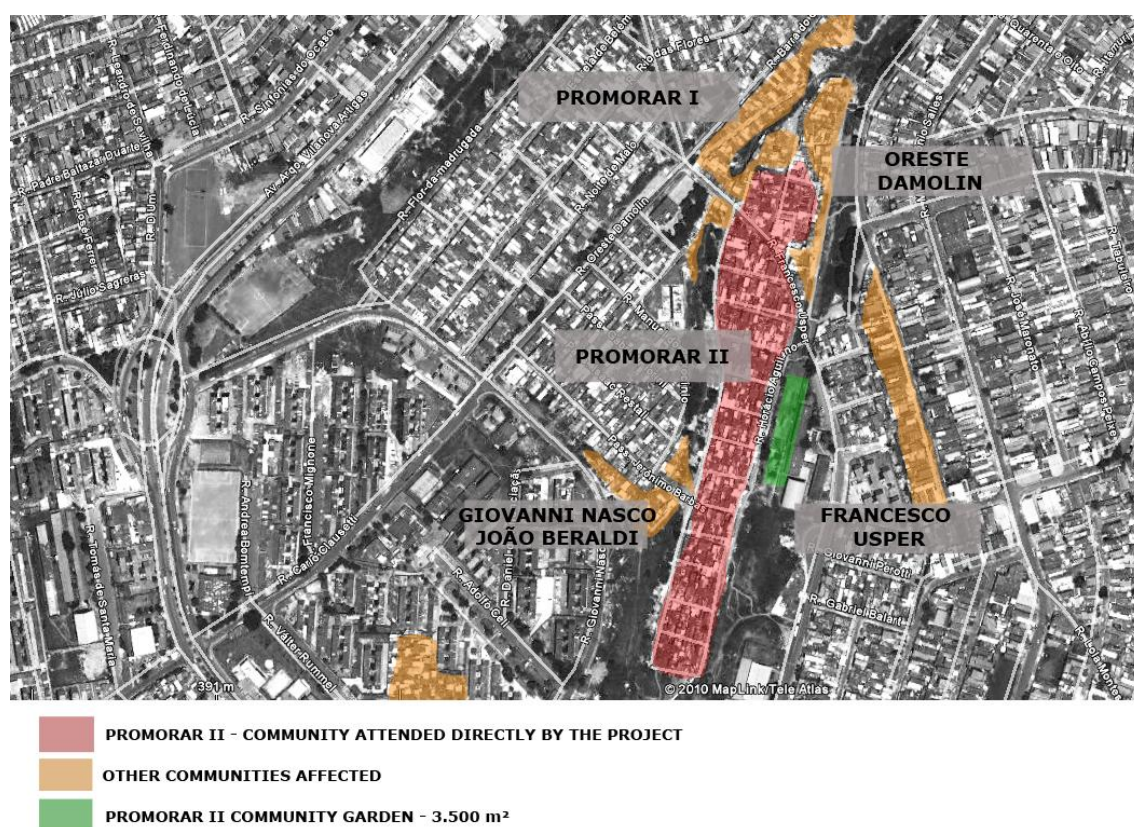


Figure 18 PROMORAR II Community Garden and Surroundings

Source: Based on HABISP / Google Earth (2010)

The first step to develop a garden is to obtain permission to use the areas, which is a laborious and slow process. The long time to obtain an area in some cases results in a sense of disillusionment about the project by the communities which leads to the abandonment of the project by some people involved. Therefore, the NGO must look for alternatives that could make the process of land acquisition faster. The tenure agreements with the land owners are basically a leasehold, in the form of a lease contract for a period of time, in Brazil known as the *Concessão Real de Direito Real de Uso* (Real Right to Use Concession) in the framework of the “Community Land Trust” model.

The piece of land obtained for the PROMORAR II community garden belongs to *Petrobras Transporte SA - Transpetro*, main company of logistics and transportation for fuels in Brazil, which suits activities such as transportation and storage of petroleum products, alcohol, biofuel and natural gas. *Transpetro* is responsible for an “invisible road” network consisted of more than 13.000 kilometers of pipelines - including oil and gas pipelines - linking all regions of Brazil and supplying the most remote parts of the country.

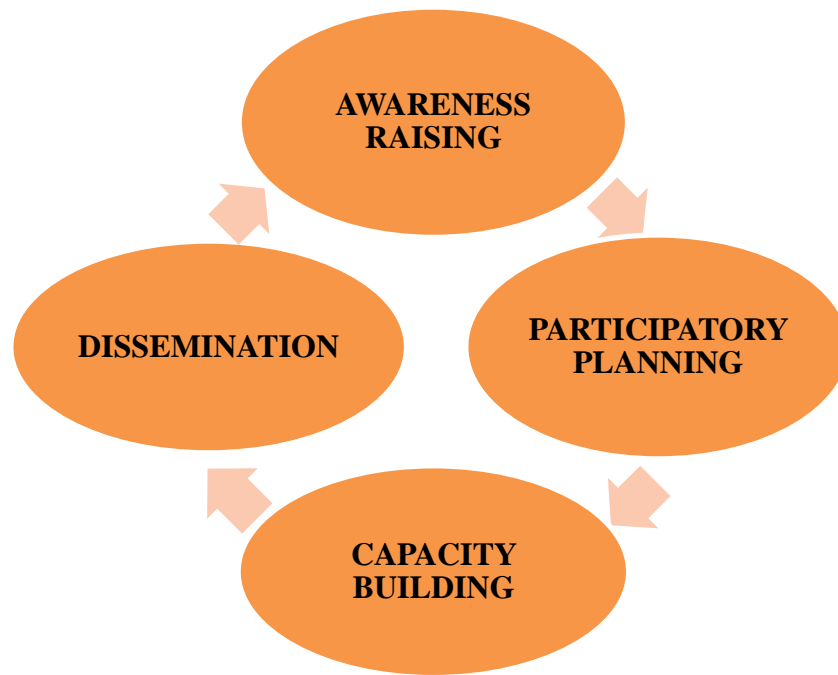


Figure 19 NGO's 4 phase approach methodology

Source: by author (2010)

On the tracks of pipelines is prohibited any type of building or any other use as recreational, vehicle parking, storage of materials, construction of landfills, transit of vehicles and machinery or any other activities not provided by the current legislation.

According to reports by PROMORAR II residents, before the making of the garden, the track of pipelines that crosses the neighborhood was being used for different illegal functions such as: dump, deposit of dead animals, hideout for thieves and stolen goods, drug dealing and invasions by people who did not find housing in communities nearby, thus, the community leader contacted the NGO to request the implementation of a garden.

Therefore, for *Transpetro* is interesting and advantageous having a garden established along its plot, so they do not need to worry about maintenance or even invasions over this piece of land. The initiative has improved safety of the surroundings by providing a use for a private owned area to benefit an entire community promoting the social function of land. After verified the positive results of the project, *Transpetro* offered more kms of land for future interventions.

It is necessary to remark that this strongly supports a possible answer to the question raised by this research in which UA could be considered part of a strategy to deal with informal growth. As observed in the PROMORAR II community, the garden

promoted socio, economic and environmental improvements that will be later presented and discussed, but also definitely provided some spatial quality to the area as it was effective in containing the expansion of the settlement by controlling and preventing further illegal occupations.



Picture 1 PROMORAR II Community Garden

Source: by the author (2010)

Returning to the description of activities promoted by the NGO, when resources and legality of use of the area are secured, an event is organized for a project presentation to the community. At this meeting the existing gardens are shown, the goals and objectives of the project are explained, as well as the obligations of the project and the expected return from the participants. After this first introduction people interested in getting involved in the project sign a list that is later assessed by professionals from the social welfare sector of the NGO.

The selection of participants is usually done through a socioeconomic survey. In this survey, people with a higher degree of social vulnerability are identified and then invited to participate. For this there are some selection criteria as: number of people within the family, number of unemployed in the family and number of children.

As in some instances there are many families that could participate in the project a criterion for prioritization of households to be served is used. These criteria are:

- Women living in families in social risk;
- Women who are assisted by social programs;
- Workers who are in poor housing, health and education conditions or on a situation of social vulnerability;
- Employees who are or have already exercised some kind of urban or rural farming activities.



Figure 20 PROMORAR II Community Garden – 3.500 m²

Source: Google Earth (2010)

The current team of PROMORAR II community garden comprises 13 people; they are the ones who work in the garden, produce and sell the products. After selecting the area to be cultivated, obtaining permission to use it and choosing the project participants, the garden's deployment begins with fencing and cleaning the area. The organic waste is separated from the trash. Wood chips, tree's bark and leaves, potato peels and other organic debris collected in the region are combined for obtaining fertilizer (composting). These initial activities are all performed by the NGO.

At this stage, to generate income as soon as possible, the early planted crops are those with very short cycle, such as lettuce and spices. Organic farming is practiced in every garden of the project adding value to the products and collaborating to lessen

greenhouse gas emission and leaching of fertilizers into groundwater. As the activities started in the PROMORAR II garden an abundant variety of vegetables was cultivated, but because of lack of knowledge among the population regarding vegetables, some varieties absolutely could not sell. At a later stage, research was conducted to introduce new crops, respecting the dietary habits of the population. In a final phase, the garden tends to be more diversified with the introduction of food rich in nutrients. Currently the PROMORAR II produces seven or eight varieties of most popular vegetables. Part of the food produced is for self consumption and part is intended for marketing. After this phase it is done the empowerment and capacity building of participants through courses, training and practical activities.

A small market was installed in one of the team members' residence, which allowed a suitable space for the marketing of products and capacity building in administration, accounting and other skills. This market distributes not only the production of this garden but also what is produced in different properties in the rural areas nearby. Their production is brought to this market so these products can reach urban consumers, creating job opportunities and income also for families in rural areas of the periphery and also in the urbanized community.



Picture 2 Local market
Source: by author (2010)

In each garden a commission composed of representatives from government agencies, grassroots organizations, NGOs working in the region and representatives of the beneficiaries performs management functions. As time passes, people who stand out in the gardens are invited by the NGO to become the monitors of the existing gardens. With the capacity building of these monitors, through specialization courses, they are able to manage, in an organized and productive way, all actions and areas where the project is developed.

Summarizing, the ultimate purpose of the community gardens are:

- to foster the local community's interest for collective work through the sharing of responsibilities, services and products;
- to rationally exploit unused, idle areas;
- to build the professional skills of local community producers;
- and to raise the level of income and productive occupation of the poor population of São Paulo city's East Zone.



Picture 3 Different takes of the PROMORAR II Community Garden
Source: by author (2010)



Figure 21 Mapping - Zoning around the PROMORAR II Community Garden

Source: by author (2010)

3.2.5 Linking urban and rural – *Horta Sete Cruzes*

Around 20 km of distance from the PROMORAR II community garden there is the *Horta Sete Cruzes*, another garden of the project but situated in the peri-urban area of São Paulo along the connection road to *Suzano*, a municipality of the metropolitan region.

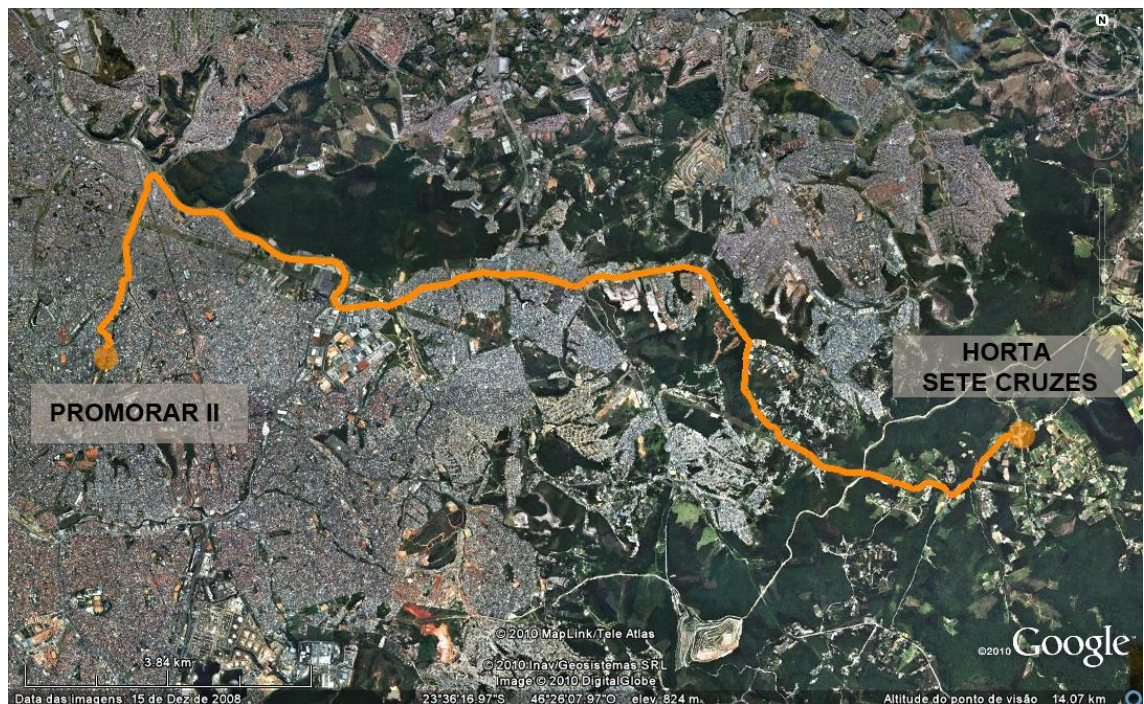


Figure 22 Location and distance between gardens (PROMORAR II - Horta Sete Cruzes)

Source: by author based on Google Earth (2010)

For many years the major difficulty for Mr. Francisco was the isolation of his property in an outlying area far away from the markets and consumers. But now his property became the centerpiece of the *Cities without Hunger* project as Mr. Francisco, is the exclusive supplier of seedlings to the other community gardens established by the NGO in the East Zone of São Paulo. Moreover, his property's production is now able to reach the urban consumers in a very efficient and promising microeconomic cycle.

The gardens located inside the urban environment are smaller, due to the size of available land; hence their production is not able to meet the increasing demand, therefore, the bigger gardens in the peri-urban areas helps to supply the outlets located in the informal settlements with the surplus production. Mr. Temp explained that, for example, if a head of lettuce that came from a garden in the peri-urban area is sold in the market inside the informal settlement, 50% of the value goes to that farmer and 50%

remains for the community (see appendix AB4 - interview with Mr. Hans Dieter Temp, 18.09.2010). These practices structures economic synergies in which employment and income is generated both in rural and urban areas.

The region where this property is located is subject of many discussions regarding its protection on the revision of the Strategic Master Plan (PDE), as many argue it should be an environmentally protected area due to the presence of many water springs over this territory. In the other hand the real estate companies requires that this area should be suitable for developments as it is served by an important connection between São Paulo and other cities in the metropolitan region through the Ring Road. Land is needed and as this region still has large tracts of land used for agricultural production, it is a target for new development ventures. Today the small scale farmers already have to deal with the pressures from the competition for land and there is the fear that this agricultural production will soon disappear.



Figure 23 Horta Sete Cruzes

Source: by author based on Google Earth (2010)

The *Horta Sete Cruzes* is receiving many investments lately. The idea is to turn this property into a multifunctional space where agricultural production coexists with environmental education projects and workshops. A room is being built and will be equipped with multimedia facilities where visitors and guests will have access to information about the project, workshops will be held and finally capacity training for the farmers will have a proper space.

Besides that, a large tank for fish is being built. The inclusion of fish as a product for the communities served with the gardens is definitely a goal for the next years in order to achieve greater dietary improvements and increase the profitability for the farmers, as the fish produced in the Horta Sete Cruzes could reach not only the communities but also the main markets nearby the Road Ring. The Horta Sete Cruzes would then become an experimental field for the NGO new ventures.

Nevertheless, Mr. Francisco's property shows that even in a region that suffers with consequences of the urban sprawl and also from the expansion of large scale farms, family farmers can stay in the fields tending properly the natural resources in a sustainable manner and promoting important urban-rural linkages based on economic synergies.



Picture 4 Different takes of the *Horta Sete Cruzes* garden, cultivation of seedlings and the fish tank
Source: by author (2010)

3.3 Analysis of Findings: the impacts of Urban and Peri-Urban Agriculture

After presenting and contextualizing the PROMORAR II community garden and its linkages with the *Horta Sete Cruzes* garden, it is possible now to assess the findings derived from the fieldwork regarding the most relevant impacts of urban agriculture practiced in *the Cities without Hunger* project concerning food security, household income, environment and community organization. This data will be analyzed under the conceptual framework provided by the 5 sub-concepts related to UA, previously discussed in this research, proposed by the Urban Agriculture Casablanca project that follows:

Sub-concept 1: urban agriculture as space for regional food production.

Sub-concept 2: urban agriculture as beautiful, productive and recreational space.

Sub-concept 3: urban agriculture and resource - efficient urban-rural cycles.

Sub-concept 4: urban agriculture and ecosystems services.

Sub-concept 5: urban agriculture as urban living space.

3.3.1 Urban Agriculture as space for regional food production.

Contribution to a Household's Food and Nutritional Security. The definition of food security has evolved to a current emphasis on access to food rather than the previous concept that merely considered the availability of food on the market. Today, food security also presupposes that the food should contain all the vitamins and proteins needed, be healthy and complete from the nutritional point of view, rather than focusing only on their caloric aspect. Access to food is a condition for food security. It is crucial to understand the contribution that community gardens make in terms of accessibility and quality regarding accessibility to food, and also to shortening the food chain promoting a food supply that is less subject to global prices fluctuations.

According to Christiane Araujo Costa, Sociologist with a Master in Public Health, coordinator of the food and nutritional security of the *Instituto Pólis* and member of the Brazilian Forum on Food Sovereignty and Security, São Paulo does not have a food supply policy, neither on the municipal or state level (see appendix AB1 - interview with Mrs. Christiane Araujo Costa, 14.09.2010). The Supply Secretariat has been disabled and nowadays the Municipality counts with a department named *Supervisão Geral de Abastecimento* (ABAST), supply general supervision. The ABAST

set norms and principles of operation for wholesalers, retailers and public consumption of food, organizing and controlling alternative modes of supply, mainly related to marketing of perishable commodities. It is responsible for the management and maintenance of 22 outlets, 14 popular markets and 888 street markets which, in most cases, are not located in the peripheries.

Thus, fresh fruits and vegetables do not reach the periphery because there is not a distribution center with affordable prices close to it, the only option left are the hypermarkets. Christiane observes that Brazilians habits are more related to the hypermarket culture instead of street markets, nevertheless, these hypermarkets are also located far away and only accessible by long trips on public transportation or by cars. Therefore, even not-as-poor urban dwellers may find it difficult at times to find enough quantities of fruit and green vegetables. While the supply channels from the rural areas to the city are inadequate, such products will always be scarce, and the reliance on economies of scale favors larger suppliers and the use of chemicals in preference to environmentally benign agricultural methods such as organic farming (Viljoen *et al.* 2005, p.12)

Therefore, the production of such food close to the populations that most need it makes it more accessible to those consumers, establishing a healthy and sustainable balance of production and consumption. The community gardens provide food while reducing its cost, especially in crop's seasonal peak. In times of emergencies, or when transportation and distribution logistics are hampered, products from the community gardens may become more than a supplement, and constitute the main source of food for urban consumers. Through a network of selling channels and informal mechanisms most of the food produced in urban areas is consumed therein, often by its producers and closer households.

Health-related benefits. With regard to the population's health, the community gardens are supplying organic food to individuals or families that simply cannot afford a daily meal since most of them are all below the poverty line. Thus, the garden supplement an individual's basic diet by providing fresh foods of recognized nutritional value (since they contain fibers, vitamins and other indispensable components to an adequate nutrition), reducing the prevalence of diseases largely associated with low organic resistance stemming from an unbalanced diet.

Poor families cannot – at least not regularly – afford to buy perishable foods, those containing essential micronutrients to one's health and so much more vital for the younger ones.

Before the establishment of the community garden the PROMORAR II population's diet was based on beans, rice, flour and some meat, when they had money to afford it, which was basically chicken, chicken carcass or sausages. Currently, the NGO counts with a nutritionist who provides assistance and courses on food and nutritional improvement for the households. The food produced by the community gardens are, therefore, rich in nutrients and necessary to alleviate undernourishment and may thus contribute decisively to a household's food security.

Community gardens reduce food insecurity in that access to food is scaled up – especially to fresh and nutrient-rich food – among the poor and most affected vulnerable groups, benefiting children foremost, whether directly through self-provisioning, or indirectly through the income added by the selling of the produce. The jobs and income generated by the gardens also add the potential benefit of reducing food insecurity. The main by-product is self-employment for producers and their families, who are stimulated to seek opportunities to sell their produce either fresh or with added value by processing it, thereby increasing their income.

Apart from this evidence, the *Cities without Hunger and Community Gardens* project has also found that:

- Families that grow fresh, perishable food are less dependent upon basic food baskets aid programs;
- Urban demand for fresh food is better serviced by the urban and peri-urban production than the rural;
- Urban producers consume more vegetables than non-urban producers.
- Benefits to the household increase when women participate in the production.

Additionally, the network of 21 gardens, both in urban and peri-urban areas, connected through the strong bonds promoted by the communities' empowerment and engagement with the project, have proven the potentiality of transforming urban open spaces into continuous productive urban landscapes (CPULs), following some of the essential assumptions from the conceptualization elaborated by Viljoen *et al.* (2005). The community gardens are structured in such way that assists the target communities through different spatial types of productive urban landscapes, ranging from small uni-

crop to large multi-crop fields being placed within the urban fabric or on the fringes of the metropolitan area, establishing a healthy and sustainable balance of production and consumption. Such approach could evolve to a larger scale food production system assisting a regional level.

Household Income. Against the backdrop of utter poverty in which this population survives, the unemployment that affects 20% of the RMSP work force (SEMPA 2004) is further compounded by domestic violence, alcoholism and other malaises.

Nearly all the participants of the PROMORAR II community garden team used to make their living by picking garbage for recycling cooperatives and their average monthly income used to be around R\$ 60,00 to R\$ 80,00 (USD 36 to 48).

Men perform manual labor production and women are in charge of the market, selling vegetables and other items produced for the local community. Sales reached up to R\$ 8.000,00 (USD 4.735) a month already, increasing the income of each participant up to approximately R\$ 600,00 (USD 355,15). Part of the proceeds from the sale is divided between the team members (according to the number of days each person worked) and some is reinvested in the project to ensure its future self-sustainability.

Demand for farm-skilled labor in olericulture - the production, storage, processing and marketing of vegetables - is about ten times higher than for all other main crops. In addition to being more labor-intensive, labor seasonality is very low in olericulture, since production tends to be constant throughout the months of the year. Thus, the community gardens are able to combine the generation of a labor-intensive activity and income generation for families. One must also consider that the food production in these community gardens relies on very low-cost inputs such as tree trimmings or composting domestic organic waste, adding economic value to what constitutes an environmental liability for local governments.

3.3.2 Urban Agriculture as beautiful, productive and recreational space.

Interviews with local resident's from the PROMORAR II neighborhood shows that their relation with the built environment changed for better as the garden expanded the green area around their community contributing for the beautification of urban landscape while preventing criminal activities

The importance of UA as an agent of community development and urban regeneration is often emphasized in the literature. The PROMORAR II community garden definitely contributed to tackle crime and improve security of the residents. Three years ago, before the establishment of the garden, the open space was being used for drug trades and hideout for criminals. Households and members of the NGO describes that this was a very negative issue mainly due to concern for children and youth. Nowadays the street alongside the garden is alive and used as a meeting point where the elderly and the youth are used to sit along the sidewalks while children play on the streets being watched by their parents.

With the permission of *Transpetro* (owner of the lot) a small area besides the garden, used for regular gatherings, received some temporary facilities constructed in wood, such as benches, tables and fitness equipment. Although the contract of granting land use prohibits this type of use over the pipelines, the exception was made due to the temporary character of leisure and recreation, which could be easily removed if necessary.



Picture 5 The garden contributing to redevelop the built environment
Source: Google Street View / by author (2010)

The community garden shows, in a micro-level, an interesting multifunctional open space being productive in its classical agricultural production sense and simultaneously acting as urban leisure and recreational space. The same could happen in a meso-level, for instance in the *Horta Sete Cruzes* garden in the peri-urban area of the city, privileged by the beautiful landscape with water streams and forest areas that could be explored in many ways related to agritourism. A macro-level can also be contemplated where a network of gardens could be connected by multifunctional uses related to production, leisure and recreation, offering different attractions along the open spaces structure, something similar to what is envisioned by Viljoen *et al.*

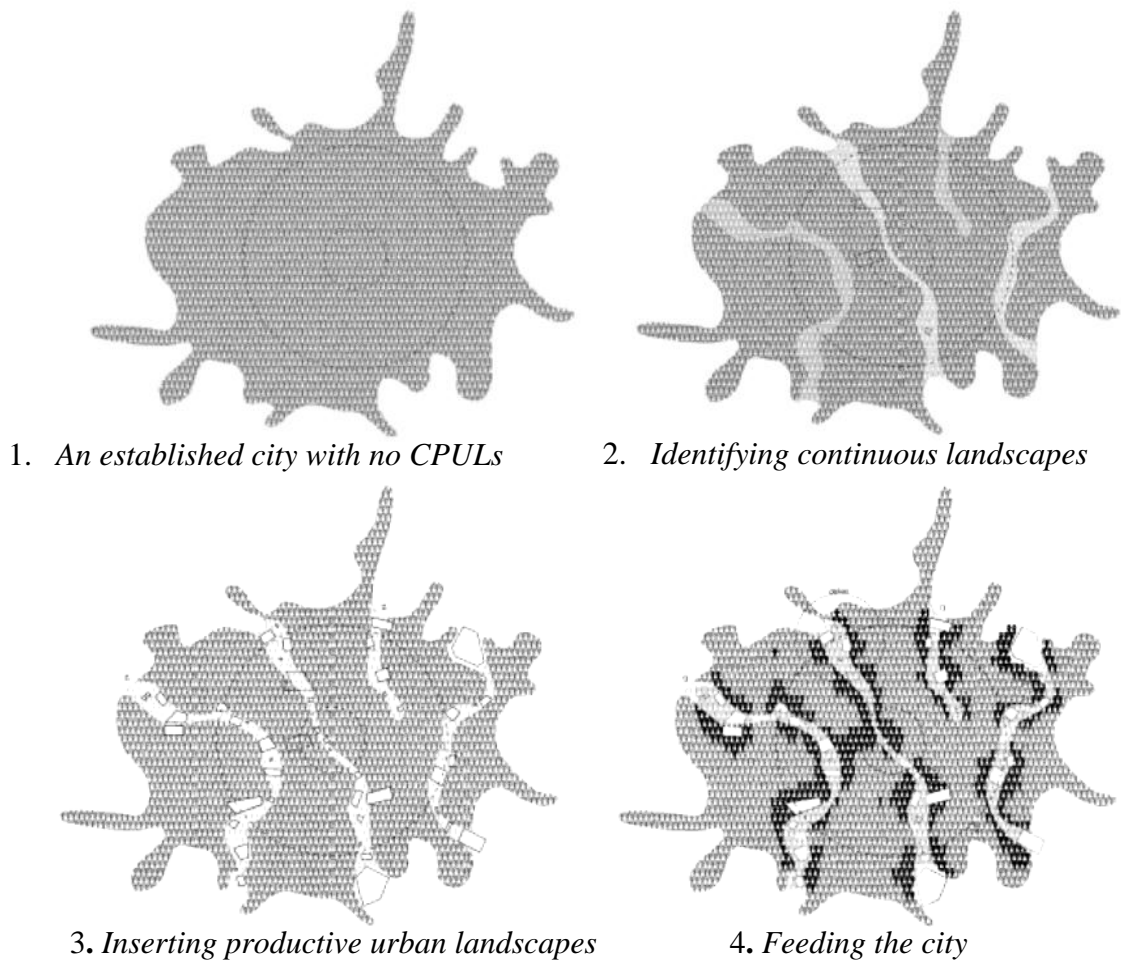


Figure 24 The spatial concept of Continuous Productive Urban Landscapes

Source: (Viljoen *et al.* 2005, p.13)

3.3.3 Urban Agriculture and resource efficient urban-rural cycles.

The PROMORAR II community garden and the other gardens from the *Cities without Hunger* project presents organic agriculture practices, hence being an experimental field in many aspects.

For the last years there has being an effort to integrate small scale sustainable cycles in between the gardens and the informal settlements. For now the focus has been on composting organic waste, reducing the use of fertilizers and water while providing nutrients back to the soil. According to Mr. Temp, practicing composting techniques is possible because it is very easy to learn and does not demand any specific or expensive technology being suitable to the low educational level and economic conditions of the participants.



Picture 6 Composting bins
Source: by author (2010)

An indirect impact related is the lower methane (a greenhouse gas) emissions in sanitary landfills caused by the anaerobic decay of organic waste, which in the community gardens is processed to become composting. As less organic waste is discarded on landfills, the useful life of these sites is prolonged. At the same time, organic agriculture requires less use of fertilizers, a strong contributor to greenhouse gas emissions from industrialized agriculture.

Although the NGO is aware of many other potentialities for closed-loop systems and the recycling of wastes into resource – wastewater and irrigation, for example - so far there is no initiative of engaging in other resource-efficient systems due to limitations in participants' ability in learning new techniques, the need for specific capacity training and complex or expensive technology.

3.3.4 Urban Agriculture and ecosystems services.

Some of the environmental benefits stemming from a community-garden driven development approach are related to the soil permeability with the subsequent reduction in the volume of drainable water, both in the areas assigned for the projects and in their surroundings, contributing also to enlarge subterranean water reserves given the higher infiltration of rainwater.

According to the topography, the PROMORAR II community garden plot is located in a higher level than the rest of the neighborhood. For many years a recurring problem in this specific area of the community was related to landslides during the rainy season which caused losses for the residents and damaged their houses with mud and

water infiltrations. The garden now has the capacity to contain the soil preventing the risk of erosion and landslides.

Another benefit from the community garden related to ecosystems services is the contribution to cooling temperatures and providing shadow zones during the day, creating recreational spaces related to the vegetation that is located nearby the garden.

3.3.5 Urban Agriculture as rural living space.

Members of the NGO and some residents pointed out that the garden promotes some kind of “romanticism” around the rural aspect of agricultural production demonstrating that urban agriculture does not relate to an attitude against the urban. The PROMORAR II community garden is now the central aspect of the resident’s daily life, adding not only important spatial and environmental qualities, but also new social organization.



Picture 7 PROMORAR II Community Garden integrated into the neighborhood landscape
Source: by author (2010)

The commitment and responsiveness with the garden generates a sense of belonging to a community project, raising the respect for the ones involved in the project and strengthening the ties between families, which is a very important aspect considering the reality and vulnerability of these groups. The daily contact with the

garden and related activities is very helpful to improve the relationship between the ones involved in the project raising the level of individual solidarity among each other.

The same applies for the Horta Sete Cruzes present in the peri-urban area of the metropolitan region. Mr. Francisco and his family are now aware of their importance to the whole micro-economic system. This commitment to the project encourages them to look for alternatives to protect their agricultural production against the land competition and the pressure from the real estate market. Mr. Francisco pointed out in interview the need to articulate and join to other farmers from the same region in order to increase their production and gain more market being able to participate of governmental aid programs or request for larger financing volumes (see appendix AB3 - interview with Mr. Francisco Assis Neto, 18.09.2010).

The PROMORAR II community garden is already almost self-sustainable, it is expected that with the partnership with larger production center in the periphery, such as the Horta Sete Cruzes, the households will become entrepreneurs able to assume total control over the garden and local market management, which will be supporting and being supported by the garden in the periphery, promoting self sustainability in the urban and peri-urban area. This is a very slow process and depends on resources provided by the partners and sponsors of the project.

Therefore, this will only be possible by constant empowerment and cooperation between the NGO, the households, the farmers, and every stakeholder directly involved in the process. Hence, the goal is to establish an integrative system of organization to generate resilience to support the challenges that the community will face in the future. However, the NGO recognizes that alone will not be able to generate such awareness. Therefore, it is needed more similar initiatives all over the city to create a strong articulation between the farmers providing them a level of organization and also a recognition by other institutions and governments that allows them to claim for larger investments and pushing for public policies that encourage and facilitate their activities.

SECTION 4

PUBLIC POLICIES ON LAND AND FOOD SECURITY

4. PUBLIC POLICIES ON LAND AND FOOD SECURITY

4.1 Land Policies and Land Governance

In Brazil land was the first good to be privatized (Mueller *et al.* 1994, p.261) and its possession has always been related to wealth and power (Assunção 2006, p.1). Around 1530 during its colonization process, inspired by the success of land settlements in the Madeira Islands, the Portuguese Crown divided Brazil into 15 territories called “*capitanias hereditárias*” (hereditary captaincies) - areas donated to Portuguese grantees (captains) with an hereditary succession family based system in order to promote settlement and guarantee possession (*ibid.* p.2).

According to Mueller *et al.* (1994) during this time it was more interesting for Portugal to take advantages of the opportunities created by the sea route to India than to explore the new colony. As a consequence, and due to the abundance of land to be settled in Brazil, the strategy adopted was to offer land for free. These large plots of land were called *sesmarias* and gave full property rights to the grantee, whenever land was kept under cultivation, a condition that would persist throughout Brazilian history.

As the international demand of sugar was reaching higher levels, the interest in land for production increased, however to obtain a *sesmaria* it was necessary to own a certain amount of capital and slaves. The ones without capital or those unwilling to go through the process could merely squatt on unoccupied land (*ibid.* p.262).

The *sesmaria* system finished in 1822 with the colony independence and was not replaced until 1850 - no land policy took place for almost 30 years and settlers obtained land by squatting or enforcing their claims by social norms (Assunção 2006, p.2). During this period there was no regulation regarding occupation and use of land, a dynamic that later on would be known as *posse* – possession. At this moment, since the value of land was relatively low throughout the country, there was little incentive and political will to overcome difficulties and institute a land policy.

However, the Brazilian economy was becoming increasingly dynamic due to the production of coffee by the middle of the nineteenth century. The demand for vast areas of land – which led to the gradual increase in its value – in addition to the lack of formal property rights and regulations, evolved to a scenario in which conflict over land became increasingly common.

A demand for change in institutional arrangements concerning property rights finally occurred, as in 1850, by pressure from the landowners of coffee plantations, the

Land Law was created (Mueller *et al.* 1994, p.263), which legitimized all *posses* and revalidated all *sesmarias* obtained until that date.

The Land Law was enacted the same year that the Law on Cessation of the Slave Trade and coincides with the growth of foreign immigration towards the rural areas in Brazil. The main aim of the Land Law was expressed in its first article: "*are prohibited purchases of public land for another title other than buying.*" That is, the government could not continue to give public land for cultivation or living, and citizens could not seize them anymore.

The provisions of the Land Law (regulated by Decree 1318 of 1854) were not intended to democratize the property, but concentrate it in new hands, allowing its transformation into capital. The sale of public land was allowed only by cash, being established an amount for the smallest lot for sale. Poor squatters and recently arrived immigrants were not customers for such business. The price of land along roads and around cities forces immigrants to take jobs as laborers. Thus, both former slaves and immigrants were left out of the process. They would have to make a living as employees, including paying for their household (Silva 1997, p.17).

In determining that the only legitimate way of obtaining land was purchasing it, the Land Law also stipulated penalties for those who wrongfully took possession of idle land (second article). Since then was developed a whole legal structure and ideology to justify the private ownership of land, even if unproductive, and the illegitimacy of possession by necessity. The patronage culture also explains the concentration of land as a form of wealth and power, which structures a highly speculative and exclusionary land and real estate market.

Mueller *et al.* (1994) and Assunção (2006) remarks that the absence of property rights followed by the increasing land values, which in turn leads to the possibility of conflict and then to demand and provision of property rights, is a condition which will be observed repeatedly throughout Brazilian history.

In 1889 with the proclamation of Republic, the jurisdiction over public land was transferred to the states and the federal government retained control only over the boundaries of the country and over new territories. Each state adopted its own legislation pertaining to public land, yet there were no radical deviations from the basic principles of the 1850 Land Law. A major problem in most states was to determine which land belonged to private parties and which land was public. "*After centuries of confused, nonexistent and often fraudulent land policy, this was not an easy task*" (Mueller *et al.* 1994, p.264).

Having received jurisdiction over the public land in their area, the states proceeded to encourage settlement. This was done, to a large extent, by actively promoting colonization, in the sense of planned settlements for waves of migrants and immigrants, either by the state or by private companies. The decreasing speed of colonization occurred in each state when the stock of public land had been significantly reduced. This reduction occurred through spontaneous settlement, colonization and the simple sale of land.

Until the late 1980s, all land policy and urban development plans were devised at the Federal level due to a highly centralized government structure. In the absence of Federal action, some local governments crafted their own policy initiatives and urban planning tools to shape and manage urban development (Macedo 2008). In addition to the heritage from the colonial period, the macroeconomic environment in the last 40 years has played a key role as a determinant of land distribution in Brazil. Especially in periods of high macroeconomic instability, people demand land as a mechanism of protection against uncertainty.

According to Macedo (2008) early constitutions guaranteed the right to property and the right of government to expropriate private property for public use with just compensation. Moreover, the 1988 Constitution was essentially the genesis of property rights based on legitimacy not legality in Brazil. The two articles in the *Urban Policy* chapter empowered local governments to demand within the limits of Federal legislation and local comprehensive plans, that the owner of vacant or underutilized urban land should promote its use.

To promote the use of urban land implies developing it, which is, not allowing vacant land to be idle acquiring value and being used for speculation purposes. Article 182, paragraph 4, of the Constitution establishes possible penalties for not complying with this mandate, including mandatory subdivision or construction, progressive property taxes and expropriation with compensation by the government.

The enactment of the City Statute (Federal Law No. 10.257, 2001) established norms of public policy and social concern that regulates the use of urban property in favor of the collective good, safety and welfare of citizens, as well as the environmental balance. Emphasis is placed on the legal framework governing urban development and management, recognizing the 'right to the city' as a collective right (Fernandes 2007b, 2007a), thus democratizing the conditions of access to urban land and promoting the social function of property. This concept, advocated by the Brazilian Constitution,

purports that the well being of the community is more important than private property rights, and that the use of urban space must be socially just.

Macedo (2008) remarks that to promote the social function of property was the impetus for developing tools that would promote equitably distribution of the costs and benefits of urbanization process, prevent speculation, retain public investment benefits for the entire community, and integrate informal areas into the formal urban fabric through urbanization and regularization.

“Today there are legitimate ways of occupying land in Brazil, which do not fit the traditional definition of legal property, that is, verifiable through a title deed, but that afford not only access to land but also relative security of tenure”

(Macedo 2008, p.259)

Facilitating access to land and lower its cost for the implementation of public policies, are key targets for any democratic development in rural and urban areas. Clear archaic historical and structural processes of land regularization is a key challenge, which has been waged in the quest for reduction of social inequalities and the acquisition of a worthy citizenry, less restricted to a portion of society .

Land ownership has functioned as a central makeshift assigner of power. This fact is evident in the exaggerated prices of expropriation of land for social interest. In both horizons, rural and urban areas, the land question is crucial to the development of public policies aiming social equity in relation to land ownership (Ferreira 2003a). At the local level, a paradigm that supports more effective private-public collaborations and better urban planning tools will foster integration, interaction and coordination.

The actions regarding urban and peri-urban agriculture in the local level will be presented below following the establishment of the Urban and Peri-Urban Agriculture Program (PROAURP) and two main legal instruments related to land: the Special Zones for Agricultural Production and the Progressive Property Tax, Compulsory Building or Use, and Expropriation that will be presented below.

4.1.1 Programa de Agricultura Urbana e Peri Urbana (PROAURP)

Urban and Peri-Urban Agriculture Program

São Paulo has been trying to consolidate a municipal policy in recent years for promoting and fostering urban and peri-urban. Integrating urban agriculture into the city of São Paulo policies and normative framework by including theme-related clauses in the Strategic Master Plan (PDE) legitimated the activity as it was embedded into a municipal development strategy. The creation of the Urban and Peri-Urban Agriculture Program (PROAURP) regulated this practice and generated a space for debating urban farming's regulatory framework, leading to the formulation of different tools to promote the agricultural use of land.

The enactment of Municipal Law 13.727 of 2004 established the program in São Paulo and provided its guidelines, which includes a public policy of social relevance to the city and its metropolitan region. There are, among the goals of the program, both measures related to promotion of social inclusion and the principles of agro ecology.

Urban and peri-urban agriculture in São Paulo is an important instrument for social and economic inclusion, involving a large number of people in productive activities and income generation. It also means an activity to promote local development based on socially and environmentally sustainable practices. Promoting solidarity and associative forms of production are set out in Article 53, Section X, which deals with UA, in the Strategic Master Plan (PDE).

“For purposes of this law urban and peri-urban agriculture means all activity aimed at the cultivation of vegetables, legumes, medicinal plants, fruit trees and flowers as well as the creation of small animals, fish farming and artisanal production of food and beverages for human consumption within the municipality.”

It should be emphasized, though, that before PROAURP, the *Programa Hortas Comunitárias* (Community Gardens Program) of the *former Secretaria Municipal de Abastecimento* (Municipal Supply Secretariat), has led the establishment of home gardens for consumption (in communities, associations, health units, etc.) and practices aimed at developing environmental education (in schools, kindergartens, community

centers) and health promotion and occupational therapy (health units). Also, the *Secretaria do Verde e do Meio Ambiente* (SVMA), the Municipal Environment Secretariat since 2002, already worked on developing so called Centers of Urban Agriculture for the creation of gardens for income generation in communities of greatest social vulnerability.

With the enactment of PROAURP, there was the intention to concentrate the work and projects related to urban and peri-urban agriculture under only one coordinator institution. In addition to the urban farmers, the program started to work also with family farmers in peri-urban areas, especially in *Parelheiros*, *São Matheus* and *Sapopemba* districts.

The PROAURP main objectives are:

- fight hunger;
- encourage generation of employment and income;
- promote social inclusion;
- encourage family farming;
- encourage production for self consumption;
- encourage associations;
- encourage agro-ecotourism;
- encourage sales direct from the producer;
- reduce the cost to access food for low-income consumers.

PROAURP, as an inter-secretarial program, has also the important challenge to support and encourage, among other activities, the organization of UA product markets, the organization of craft producers, promotion of activities that provide qualification of manpower and organization of groups that generate jobs and income. The legal framework provided by the Strategic Master Plan (PDE) and the activities related to PROAURP allow, potentially, the use of idle and underutilized areas, used as garbage and debris dumps, since these lands serve as breeding sites for diseases and illegal occupation.

“According to the Strategic Master Plan law and seeking the inclusion of a significant portion of the population, the municipal government should encourage the transfer of not used private and public land for partnership programs of social inclusion to fight hunger, promoting practical productive and supportive activities, and creating mechanisms that allow urban agriculture. Based on this assumption are proposed objectives, policies and strategic actions contained in Title II, Chapter II, Section X, Articles 51 to 53.”

The program can also maintain and upgrade agricultural areas located in RMSP and environmentally protected areas through the use of low impact technologies (one of the goals the PROAURP is to support and stimulate the conversion of conventional farmers to the production system of agro-ecological base), setting the farmers in their properties and preventing new settlements and squatter settlements in these areas.

According to the law the Municipal Government should make a survey of public land suitable for the implementation of the PROAURP program activities, and also private land with prior concurrence of the owners, which could be rewarded with tax incentives as a manner to call their interest for the program and to provide a proper use for their idle and vacant land.

It was also determined by the same law the establishment of an information database regarding private and public land suitable for UA, providing free access to data over the Internet. Although the efforts have been made to achieve the Cadastral Land Survey and the *orthophotography* survey was executed, according to Felipe Francisco de Souza, architect and urban planner of the Urban Development Secretariat (SMDU) in São Paulo, high levels of bureaucracy and articulation between elites have barred this process to continue (see appendix AB3 - interview with Mr. Francisco de Souza, 16.09.2010). The survey carried out between 2002 and 2004 has not yet been published and made available. Souza points out that 50% of the survey was not clear about ownership, as registers of real estate have the right not to provide information on properties.

PROAURP – Program Priorities
<p>I - the local food production by encouraging the vocation of each region;</p> <p>II - a policy of agricultural credit and insurance;</p> <p>III - guarantee of technical assistance and research directed towards the public good program performance;</p> <p>IV - to encourage the consolidation of solidarity forms of production and marketing;</p> <p>V - incentives to form cooperatives for production and marketing;</p> <p>VI - ways and means of adding value to products;</p> <p>VII - the establishment of central purchasing and distribution in the outskirts of the city;</p> <p>VIII - the approach of producers and consumers in the same region;</p> <p>IX - to encourage traders to sell local products in local markets and outlets;</p> <p>X - the purchase of production by local institutional market (schools, daycare centers, nursing homes, soup kitchens, hospitals and charities).</p>

Table 10 PROAURP - Program Priorities
Source: (PROAURP 2010)

4.1.2 Zonas Especiais de Produção Agrícola (ZEPAG) Special Zones for Agricultural Production

An important aspect of the UA institutionalization in São Paulo was the inclusion of the *Zonas Especiais de Produção Agrícola* (ZEPAG) Special Zones for Agricultural Production, in the Strategic Master Plan (PDE), Chapter II that deals with human development and quality of life.

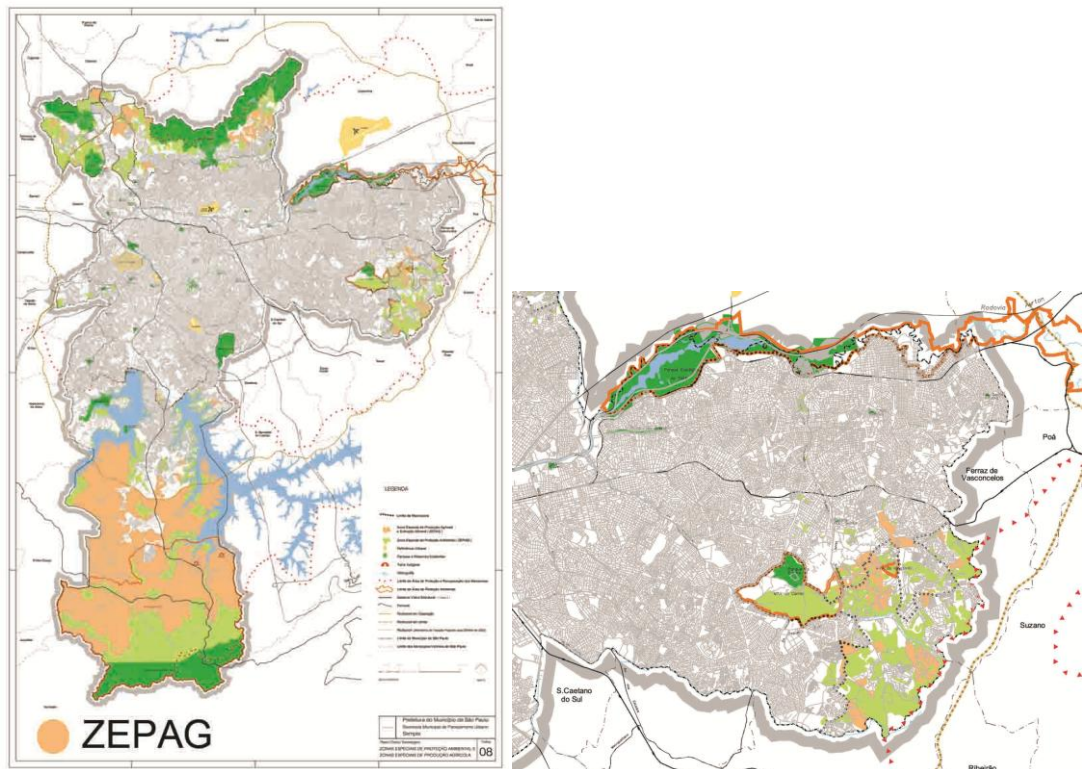


Figure 25 ZEPAGs in the Municipality of São Paulo and a zoom at the East Zone

Source: Plano Diretor Estratégico do Município de São Paulo (SEMPA 2004)

The ZEPAGs are parts of the municipal territory in which continued agricultural or reforestation activities are of public interest (art. 169) (SEMPA 2004, p.261), in this sense sub-prefectures from each district of São Paulo are responsible to identify and classify ZEPAGs in their regional plans.

The ZEPAGs occupy 14.75% of São Paulo's territory and are concentrated mostly in the east and south regions of the municipality. In most cases, properties are located in environmentally protected regions.

Although an important zoning tool, without effective oversight, many of the ZEPAGs have been transformed into informal settlements. Further, given the lack of

interest of the heirs of former farmers, some are abandoned or, at best, transformed into places of leisure or other uses than agriculture production.

There are no reliable statistics on agricultural production in São Paulo. The latest survey, conducted between 1995 and 1996, by the Ministry of Agriculture has placed the city among the top five lettuce, cabbage and broccoli producers of the State. However, the urban disorder in the periphery and especially the expansion of illegal encroachments in the watershed areas has caused the reduction of agricultural activity in ZEPAGs. Some issues related discourage farmers to continue in the area, for example, the drainage from these informal settlements contaminates the water used for irrigation of agricultural production, the crime rates in these regions are quite high which also deters farmers who end up migrating to neighboring municipalities. Research performed at the *Parelheiros* and *Capela do Socorro* indicates that the area of rural properties fell from 2.600 hectares in 1992 to 1.217 hectares in 2002.

4.1.3 Progressive Property Tax, Compulsory Building or Use and Expropriation

The *Cities without Hunger and Community Gardens* project takes advantage of an important instrument regulated by the City Statute: the Progressive Property Tax. In São Paulo there are several plots in vacant land that are idle and able to be used for the establishment of new gardens by the NGO, which finds no difficulty in accessing this land. The reason behind this is because the owners seek legal ways to avoid problems related to their land, for example, invasions or punishment by the progressive property tax that could lead to further expropriation.

The project is constantly in the media, which draws the attention of many potential partners (private owners, government agencies) that contacts the NGO offering land for gardens. These areas are registered in a database that works as a land inventory. As the NGOs raises more funds, contact is made with those owners and a survey is conducted on the ground, to ascertain whether it is a contaminated soil, if there is water, and other technical requirements for establishing a garden. Today this database works as a 'waiting list' in which many private owners expects the opportunity to have a garden in their land, as they are aware of the direct and indirect benefits that the project can offer.

The Progressive Property Tax, Compulsory Building or Use, and Expropriation tools aims to directly reach urban properties that do not fulfill their social function and

is clearly a penalty for their owners. From the moment a piece of land is considered by the Government underutilized or idle, it may be required for the owner its compulsory edification or use, if the request is not met it generates a progressive increase in property tax - regulated and clearly defined by law – leading to the possibility of expropriation of this property after 5 years.

Still, a controversial point of this set of instruments is that the City Statute determines that the local Strategic Master Plan should regulate and identify the areas prone to the progressive property tax, but do not define or characterize to what extent an area is under-utilized. Evidently, the definition of these criteria and the lack of records on ownership and tenure arrangements of properties can significantly reduce the impact of progressive property tax as an instrument of control.

The tax and induction of urban development instruments, especially those proposed in the City Statute, may promote the initiation of a new role for Municipalities to control the processes of urban production, giving it the necessary sense of democracy and social justice.

However, as observed by Ferreira (2003a), these tools depends on a gradual process of consolidation of a political culture that sees the state as the legitimate driver of the social function of urban properties and inductor of the growth of cities according to public interests. In this process, the role of civil society and organized groups will always be central and indispensable to the City Statute effectiveness.

4.2 Public Policies on Food and Nutritional Security

“The policy and political dimension of UA research tends to prescribe what governments should be doing rather than examining how things are done – how food and agricultural policies are deliberated within government, the reasons why UA does or does not become a central policy issue, or how non-government actors can or do influence decision-making about food security and food policy. These are questions about the politics of urban food production; they focus on the conflicts and debates that arise between actors when deciding what ought to be done, who should have decision-making authority, and who should be included in decision-making.” (Gore 2008, p.49)

The Brazilian economy is the fourth largest food exporter in the world. Its agriculture is strong enough to meet domestic needs and generate foreign exchange through exports. The sector accounts for 26% of Gross Domestic Product, more than a third of exports, and in 2010 it is expected to reach 146 million tons of food, exceeding 8.3% in the 2008/2009 seasons.

Still, in the XXI century, access to food remains a problem for millions of Brazilians. According to FAO, Brazil has an availability of food equivalent to 2960 kcal / day per person, far above the recommended minimum of 1,900 kcal / day. However, data from the same organization shows that, in Brazil, one in ten people eat less than 1,650 kcal / day on average.

A survey implemented by IBGE, revealed that approximately 30% of Brazilian households have no regular and permanent access to food of sufficient quality and quantity.

The research related to the year 2009, analyzed 58.6 million private households in the country. Of this total, 17.7 million (30.2%) have some degree of food insecurity, which represents a total of 65.6 million people. In 2004, the proportion was 34.9%. Among those households mentioned above, 18.7% (or 11 million households) had mild food insecure, 6.5% (3.8 million) moderate, and 5% (2. million) impairment. In all, 11.2 million people reported having gone hungry in the period investigated.

Research shows that the prevalence of food insecurity is more in rural than in urban areas. While 6.2% and 4.6% of households in urban areas had moderate or severe levels, respectively, in rural areas the figures were 8.6% and 7% (IBGE 2009b).

CONDITION	DESCRIPTION	PERCENTAGE OF HOUSEHOLDS	NUMBER OF PEOPLE (MILLION)
Food safety	The residents of the households have regular and permanent access to quality food in sufficient quantity, without compromising access to other essential needs	69,8	126
Mild food insecurity	Concern or uncertainty about future access to food, inadequate amounts of food resulting in strategies that aim not to compromise the amount of food	18,7	40,1
Moderate food insecurity	Quantitative reduction of food between the adults and / or disruption of eating patterns resulting from lack of food among adults	6,5	14,2
Severe food insecurity	Quantitative reduction of food among children and / or disruption in eating patterns resulting from lack of food among children, hunger (when someone gets the whole day without eating due to lack of money to buy food)	5,0	11,1

Table 11 Levels of Food Security in Brazil

Source: IBGE (2009)

In order to overcome such scenario and reduce the number of undernourished people, the Brazilian public policies in food and nutritional security aims to create benefits and incentives for small scale and most vulnerable family farmers. Accordingly, the Federal program “Fome Zero” and its organization and impacts on national and local level will be explained below. The brief overview to follow can be

supplemented by making reference to the document *Projeto Fome Zero: Uma Proposta de Política de Segurança Alimentar para o Brasil*, (InstitutoCidadania 2001), publications by the Ministério do Desenvolvimento Social e Combate à Fome (MDS 2008) without mentioning the official governmental websites <http://www.mds.gov.br/> (MDS 2010) and <http://www.fomezero.gov.br/> (FomeZero 2010).

4.2.1 Projeto Fome Zero (PFZ) “Zero Hunger”

Projeto Fome Zero (PFZ) created in 2003 is a set of actions promoted by the Federal Government which prioritizes the issue of hunger on the policy agenda in Brazil by ensuring the human right to adequate access to food. This strategy is coordinated by the Ministério do Desenvolvimento Social e Combate a Fome (MDS - Federal Ministry of Social Development and Fight Against Hunger) being part of the food and nutritional security policies, seeking to promote social inclusion strengthening the participation and mobilization of society and the achievement of citizenship for the most vulnerable.



Ministério do Desenvolvimento Social e Combate a Fome (MDS)
(Federal Ministry of Social Development and Fight Against Hunger)

Secretaria Nacional de Segurança Alimentar e Nutricional (SESAN)
(National Food and Nutritional Security Secretariat)

Secretaria de Articulação para Inclusão Produtiva (SAIP)
(Coordination for Production Inclusion Secretariat)

Table 12 Federal Level - Food and Nutritional Security Related Institutions
Source: by author (2010)

The National Food and Nutritional Security Secretariat (SESAN) implement the national policy on food and nutritional security and perform structural and emergency actions to combat hunger and encourage family farming. The Coordination for Production Inclusion Secretariat (SAIP) develops and executes strategies for the productive inclusion of families benefited by the actions of MDS, integrating them into the labor market. It also implements projects of vocational skills, manages the donations to PFZ and takes actions to create institutional links that would benefit low-income families.

Such approach is inspired by the World Food Summit and Millennium Development Goals, which call for cutting hunger and extreme poverty by half by 2015.

Extreme poverty – inadequate resources to produce or to acquire enough food – is estimated by PFZ to affect 9.3 million households or 44 million people in Brazil. While a national problem, occurring throughout the country (with an incidence of 19% in metropolitan zones, 46% in non-metro urban centers and 35% in rural areas), extreme poverty has certain regional “pressure points”, with a concentration of the poor in the North East Region (50%) and the South East Region (26%).

The integrated performance of the Ministries that implement policies strongly bound by the guidelines of the PFZ allows a planned and combined action with better possibilities to ensure access to food, expansion of production and consumption of healthy food, the generation of employment and income, improvement in education, health conditions, access to water supply, and many other actions based on citizenship rights.

According to FAO in a joint research with the World Bank (WB) and the Inter-American Development Bank (IDB), about 60 % of the food consumed in Brazil and almost 40 % of the gross value of agricultural output is produced by small-scale family-managed farms.

The same research reveals that there are some 4.1 million family farms (85% of the total number of holdings) which occupy some 30% of the cultivated area in the country. The family farming sub-sector is characterized by its diversity in terms of the very wide range of products which it generates as well as in relation to farm size: some 20% of the family-managed farms – those which are most fully integrated with the market – account for around 71% of the sub-sector’s output; a further 35% generate about 20% of the output, while the remaining 45% contribute only 9%. Rural poverty is heavily concentrated amongst the latter, which are also vulnerable to food insecurity (FAO 2002).

The PFZ operates on four main coordinating axes: access to food, strengthening of family agriculture, income generation and social mobilization and control. Therefore, for purposes of this research emphasis will be given to two main axes, *Access to Food* and *Strengthening of Family Agriculture*, which include policies on urban agriculture and exert an impact in the initiatives and practices related to this theme, by contemplating incentives and direct benefits to family farmers.

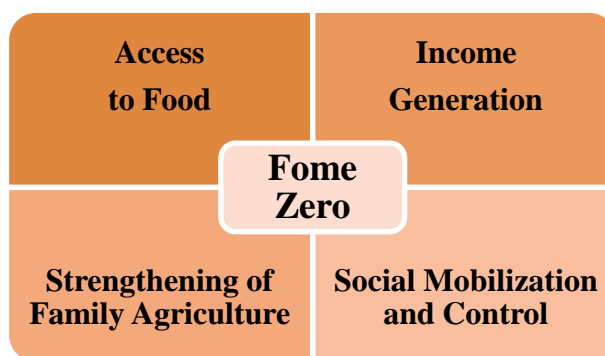


Figure 26 Zero Hunger Project coordination axes
Source: Projeto Fome Zero (InstitutoCidadania 2001)

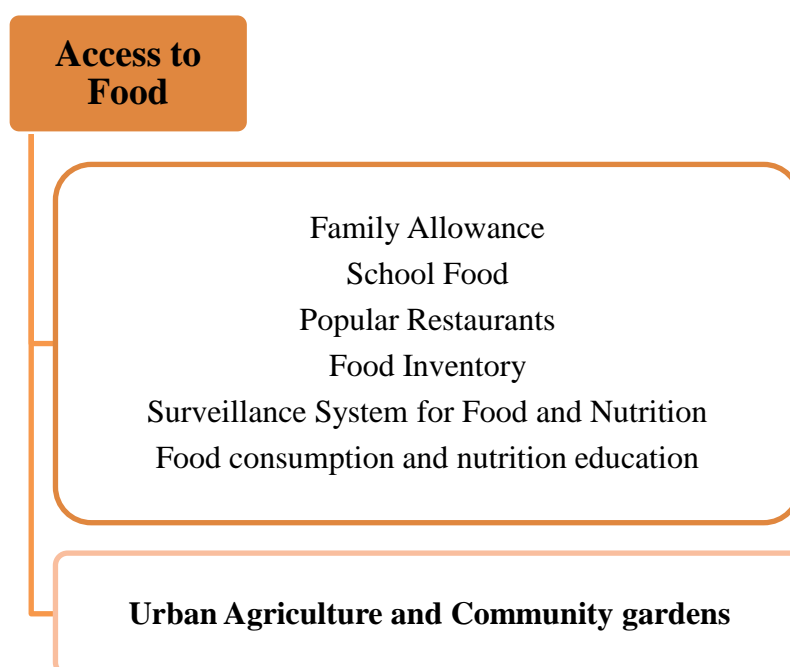


Figure 27 Zero Hunger Project actions in access to food
Source: Projeto Fome Zero (InstitutoCidadania 2001)

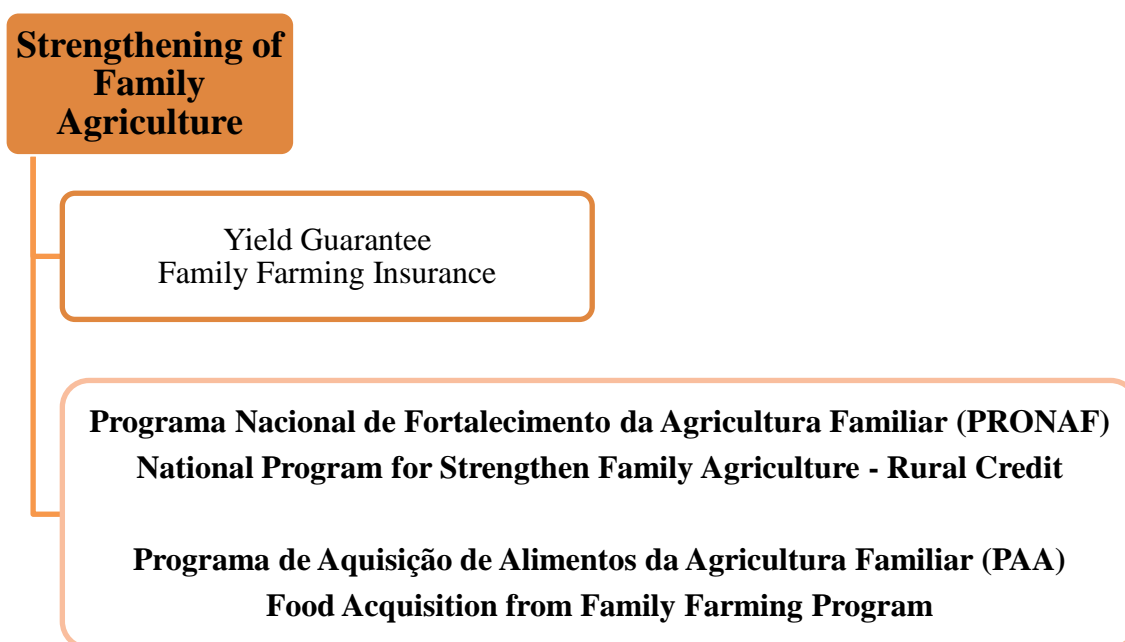


Figure 28 Zero Hunger Project actions in strengthening family agriculture
Source: Projeto Fome Zero (InstitutoCidadania 2001)

4.2.2 Programa Nacional de Fortalecimento da Agricultura Familiar (PRONAF) National Program for Strengthening Family Agriculture - Rural Credit

The National Program for Strengthening Family Agriculture (PRONAF) is a Federal program created in 1995 with the intention of assisting in a differentiated way the small scale farmers who develop their activities through direct employment of their families' workforce.

It aims, through financing of individual projects or groups of farmers and agrarian reform settlers, to strengthen family farming activities in order to integrate it into the agribusiness chain, providing income generation and adding value to products and property, through the modernization of the productive system, enhancement of rural producers and professionalization of farmers.

The main actions by this program are: expansion of rural credit assistance to farmers; provision of funding for family farmers in the harvesting period and advance purchase of production.

In order to access the credit farmers must meet some conditions as: explore the land in rural areas as its owner, leaseholder, tenant, partner or concessionaire of the

National Agrarian Reform; reside in the property or close to it; consider the family work as a base for exploration of the land and have a certain annual gross income.

These conditions are somehow too restrictive in the opinion of Mr. Hans Dieter Temp and Mr. Francisco Assis Neto (see Appendix AB4), since it does not contemplate urban farmers in a first instance.

To overcome this, the *Cities without Hunger and Community Gardens* project fosters the creation of an Association of small Family Urban Farmers within its beneficiaries - comprising basically those people directly affected by unemployment and under-employment as teenagers, women, and the elderly – with the farmers located in the peri-urban area still considered rural by policies and regulations.

Insofar these people practice the agriculture activity for their livelihood and, subsequently, qualify as Family Farmers in compliance with the legislation; they can obtain the Aptitude Declaration issued by PRONAF, which will entitle them to participate in several federal government-sponsored programs of distribution of food, agribusiness, rural credit, insurance and social security.

The Association enables its beneficiaries to participate as an entity in the São Paulo Urban Agriculture Forum, whose goal is to become a tool towards facilitating the implementation of UA as a public policy in the São Paulo metropolitan region.

In 2009 a survey commissioned by the Confederação Nacional da Agricultura (CAN) the national confederation of agriculture, indicates 72.3% of the families living in agrarian reform settlements in Brazil are unable to generate any income with the production of their lots. From this group 37% are not producing anything and from the remaining 63% that produce in their own land, 10.7% did not get enough to ensure their own supply, and 24.6% produce only enough to feed themselves. The percentage that feed their families and sell surplus, generating income, is only 27.7%.

The survey indicates that 52% of families are not installed originally chosen by the reform program. They got there through a donation from relatives or the purchase of the lot - which is illegal.

The survey also found that the low level of production must be related to the fact that the majority of settlers (75%) have no access to rural credit program of the government (PRONAF) designed to favor small productions. According to the results, among the reasons may be the lack of documentation of ownership, lack of proven production as collateral for financing and debts.

The survey covered a thousand families settled in nine states. The Movement of Landless (MST), who struggle for agrarian reform, criticized the research. In a

statement, the organization claimed that the situation of nine settlements does not reflect reality and pointed out that the CNA represents landowners.

4.2.3 Programa de Aquisição de Alimentos da Agricultura Familiar (PAA) Food Acquisition from Family Farming Program

The *Programa de Aquisição de Alimentos da Agricultura Familiar* (PAA) the national program of food acquisition from family farming was established by Law 10.696, 2003, as a structuring action of the *Fome Zero* program. Its main goal is to ensure the marketing of family agriculture products - produced by family farmers who are assisted by the PRONAF - through the establishment of minimum prices to be charged with a warrant to purchase, while articulating this production with the institutional food markets or building inventory, taking into account the principles of food security.

As shown in the table below, over the years of the program, the number of farmers who accessed the PAA reveals a gradual and substantial growth every year, and since almost 630 000 farmers were benefited (Santos 2009).

YEAR	MDS	MDA	TOTAL
2003	42.000	0*	42.000
2004	68.200	0	68.200
2005	87.400	0	87.400
2006	120.317	27.343	147.660
2007	104.635	22.570	127.205
2008	130.000	26.809	156.809
TOTAL	552.552	76.722	629.274

Table 13 Number of farmers benefited by the PAA from 2003 to 2008

Source: Santos (2009)

Between the years 2003 and 2005, the PAA was operated exclusively with funds from Ministry of Social Development and Fight against Hunger – (MDS). From 2006, the PAA started to count with the participation of the Ministry of Agrarian Development – (MDA).

The PAA gained a big boost in 2009 when the Provisional Measure 455 required that at least 30% of the funds transferred by the *Fundo Nacional de Desenvolvimento da Educação* (FNDE) the national fund for educational development and the *Programa Nacional de Alimentação Escolar* (PNAE) the national school's meals program, are used in the acquisition of food from family farmers.

4.3 Constraints for Urban and Peri-Urban Agriculture

4.3.1 Land Contamination

As a result of the de-industrialization process that São Paulo has been going through, large tracts of land now became brownfield sites, abandoned or underused industrial and commercial facilities. Through many years, in a planned, accidental or even natural way, chemical and industrial waste were discarded, stored, buried or infiltrated in the soil without any control or supervision throughout São Paulo's territory.

The definition for contaminated areas by *Conselho Nacional do Meio Ambiente* (CONAMA) the National Environmental Board, is an area, piece of land, place, installation, building or wealth in which a quantity or concentration of material, found during an investigation, could cause damage to human health.

The São Paulo State Environment Agency, *Companhia Ambiental do Estado de São Paulo* (CETESB) responsible for the control, supervision, monitoring and licensing of pollution-generating activities, defines contaminated areas as those with proven pollution caused by any substance or waste that has been placed there, accumulated, stored, buried or infiltrated, and that has a negative impact on that which should be protected (CETESB 2010; Dantas 2008).

Basically these extensive pieces of land presents no use but are mostly located in areas fully served by infrastructure, which turn them to be a key element in the competition for land in the central regions of São Paulo. The recovery of these areas is an extremely expensive and time consuming process, which hinders its use even for the most profitable real estate developments. The Federal Law 6938/81 outlines the National Environmental Policy and in its Articles 2 and 4, aims to recover degraded areas and make the polluter responsible for the recovery of the area or for paying for the damage cause.

In the interviews and group discussions made during fieldwork for this research, the soil contamination was cited as an impediment to the practice of UA, not only due to environmental risks or the costs for the recovery of these areas, but mainly because even if they are decontaminated agriculture could not compete with other uses. Which leads to another, and perhaps the most relevant, constraint regarding land to the practice of UA: profitability.

4.3.2 Profitability and Competition with other Land Uses

In interview with Paula Santoro, urban planner and researcher at the *Instituto Pólis*, she called the attention for the land market in São Paulo and the profitability of land use (see appendix AB1 - interview with Mrs. Paula Santoro, 14.09.2010). The results of her research, carried out jointly with Nabil Bonduki, shows that agricultural profitability does not compete with any other urban use – in both urban and rural areas.

Real estate brokers generally consider R\$ 1,00 (USD 0,59) as the price per square meter of rural non-productive land, while a rural productive plot can reach a maximum of R\$ 3.35 (USD 2,00) per square meter. This is the price of rural land before even being within the city limits, lands that were not recently purchased, usually inherited or acquired through partnerships between owner and entrepreneurs.

With regard to peri-urban land that still produces in very good locations served with infrastructure to runoff the agricultural production, land prices are between R\$ 2.00 and R\$ 3.00 per square meter (USD 1,18 and USD 1,78). The highest profitability found in the state of Sao Paulo to agricultural land in rural areas, when it has no more production and is already fully incorporated in the expectations of becoming urban, was between R\$ 4,00 and R\$ 8,00 for square meter (USD 2,38 and USD 4,76). According to Santoro, probably the most profitable use in agriculture is the production of flowers, because little space is needed and the production can reach profitability quickly with high selling prices, but still could not compete with other urban uses.

The price of urban land presents itself as an essential test to be faced at the different options and forms of public action. Not just in aspect of their input for financed production and in their ability to attend to other markets or to promote urban exclusion. That is, the land price - besides being a difficulty for production - is also an essential element for the creation of demand for public programs (Silva 1997, p.6).

With regard to the competition with other uses, José Tadeu de Campos, remarks that the real estate speculation and the land prices in São Paulo hinders any kind of

urban agriculture project in large scale or even the introduction of agriculture as a land use within some regions of São Paulo. He cites the problematic around the East Zone of the city where lately real estate companies are looking for areas to develop.

The agricultural production areas are being threatened by urban expansion driven by the large amount of housing finance in recent years. Campos concludes, then, that family farming held in these areas would not be able to compete with urban use; therefore, the solution found by the owners and producers is to sell their land.

A plot in urban area of the East Zone that cost R\$ 500.00 (USD 298,50) the square meter a year ago, today it costs between R\$ 1,000.00 (USD 596,50) and R\$ 1,200.00 (USD 715,80). In peri-urban areas, a little farther from the city and that still presents rural aspects and agricultural use, this values falls to R\$ 150.00 (USD 89,50) the square meter.

Felipe Souza observes that owners of large plots of land in the peri-urban area, which does not need that production for their subsistence and also cannot compete with other producers to get into the market, will consider selling their land. In some cases encouraging encroachments in their own land, so they could request reiteration of possession for the Municipality, then becoming visible to the real estate market and increasing significantly the price of their land.

4.3.3 Social Capital and Lack of Incentives for Donors and Sponsors

Although accessibility to land for the establishment of gardens still is not a problem in São Paulo, a major challenge found by the NGO is the low level of education of the participants. The great majorities of people who work for the project are semi-literate or completely illiterate, or have never worked under a formal contract.

The training workshops must be very practical with very basic information, and it is virtually impossible to discuss themes as soil pH and iron characteristics, for example. The capacity building and training workshops must rely on knowledge accumulated much more in practice than in theory by the technicians who are involved with the project for a longer period, so they are able to convey knowledge in a simple language that is understood by other participants.

The same applies for training team members in entrepreneurship and finance for dealing with the marketing, accounting and management of products sales. Mr. Hans Dieter Temp explains that this is the main reason why social projects in Brazil are so expensive. The lack of technical capacity of people is a crucial element, but time

consuming and that requires many investments as one must start from scratch every time a new garden is established and the long term maintenance of the existing ones demands a constant financial support.

This leads to other related constraint which is the difficulty in finding funding for the project because of the lack of tax incentives for donors and sponsors. There are only two laws that allow deduction of income tax in Brazil which are for cultural projects or sports related projects. In this sense, the *Cities without Hunger* donors and sponsors receive no incentive from the government, creating a lack of interest for the private sector in getting involved since there is no direct benefit to those who finance the project.

4.3.4 Institutional Pattern and Conflicting Responsibilities

According to Quon (1999) to identify the agencies, organizations and existent institutional patterns may lead to diagnose a confused and conflicting responsibility model where different stakeholders in different departments (local, state and federal) share responsibilities in different stages.

São Paulo has launched the PROAURP which is coordinated by an articulation of many different departments: Secretaria do Verde e do Meio Ambiente (SVMA - São Paulo Environment Secretariat), Secretaria Municipal de Coordenação das Subprefeituras (SMSP - Sub Prefectures Coordination Secretariat), Supervisão Geral do Abastecimento (ABAST - Supply General Supervision) and Secretaria Municipal do Trabalho (Labor Secretariat). These actions are linked and must respond to the State Environment Secretariat (SMA) which is then articulated to the programs coordinated by the Federal Ministry of Social Development and Fight Against Hunger (MDS) and the Federal Ministry of Environment (MMA).



Table 14 Federal, State and Local Level - Urban and Peri-Urban Agriculture related institutions
Source: by author (2010)

Mr. Temp remarked in interview that such institutional pattern could be a constraint for the NGO practices in São Paulo in the sense that bureaucratic systems and very stringent requirements prolong the period of the processes for applying for funding or permissions to establish new gardens, limiting thus the possibility of a rapid response and discouraging the involvement of communities as both donors and project sponsors. The decisions regarding funding for UA initiatives are taken by the City Council on the Environment and Sustainable Development (CADES) which must check whether projects conform to the requirements from the state and federal institution's programs such as the PRONAF already presented and discussed in this research.

During the period of fieldwork for this research, the PROAURP was temporarily inactive due to a lack of organization between the coordination staff. The PROAURP is a relevant victory for the UA institutionalization in São Paulo, however, critics relies over its approach of providing "seeds and tools" but neglecting the provision of capacity training or constant assistance for the farmers. The PROAURP program has technical

expertise in agronomy, but these same technicians do not get directly involved with local initiatives such as the *Cities without Hunger* project, being more focused on other operational and administrative activities, while they could be involved with the maintenance of the existing projects and the articulation with other promising initiatives.

To ensure success in formulating and implementing policies and programs for UA it is necessary to ensure coordination between the government institutions and all the stakeholders involved in the process in the short and long term and in all different levels of intervention. In São Paulo, in one hand, there is the need to create mechanisms to facilitate access to funding and shortening the process to establish UA initiatives, and in another hand to reactivate the PROAURP which could have more decision making power in order to better assist the projects and farmers in a long term action.

SECTION 5

CONCLUSIONS

5. CONCLUSIONS

5.1 General Conclusions

This research explored two important topics within the integration of agriculture into the urbanization process: 1. turning idle and vacant land into productive and resource systems; and 2. incorporating existing agricultural production through the promotion of synergies between urban and rural. Aiming to answer the research question this study thoroughly investigated whether or not could urban and peri-urban agriculture be integrated into a strategy related to informal urbanization and collaborate to improve urban growth.

Thereupon, the *Urban Agriculture Casablanca* project and the *Continuous Productive Urban Landscapes* proposal provided an updated conceptualization for a new urban planning and design model. Furthermore, the *Cities without Hunger and Community Gardens* project in São Paulo's informal settlements demonstrated evidences of a promising initiative related to the conceptual model previously provided.

Complementarily, this work highlighted important concepts regarding the institutionalization and systematization of urban and peri-urban agriculture by means of an integrated factor to public policies.

“Urban agriculture tends to define itself as a bottom-up, grass roots movement with no time for the top-down elitism of designers. This is misguided. Environmentalism, in whatever guise, demands both top-down and bottom-up initiatives. Freeing up or reclassifying land for urban agriculture requires more than a desire to hold hands and plant vegetables. It requires top-down intervention by planners and local authorities.” (Viljoen et al. 2005, p.56)

As observed by Lovell (2010) most UA initiatives have been established through grass-roots efforts inspiring change on a larger scale, such as the bottom-up approach developed by the *Cities without Hunger and Community Gardens* project. To gain and disseminate relevant evidence regarding benefits of UA encourages its integration as a land use into planning and policies at all levels. This research aimed to analyze what is

needed for this integration to happen, advancing understanding of its constraints and potentialities.

The *Cities without Hunger and Community Gardens* project experience suggests that a **pro-urban and peri-urban development strategy** is possible by promoting use of public or private land for implementing and developing community gardens closely related to informal settlements acting positively on issues of social, economic and environmental relevance for a metropolitan region. Therefore, in this context it has to be questioned: “*What lessons can be learned from this initiative?*”

Within this thesis it has been demonstrated that a pro-urban and peri-urban development strategy depends on integrated and overlapping actions in different levels, involvement of different stakeholders and implementation of different measures that should be linked throughout the process. In this sense, some aspects must be considered:

Community organization and empowerment: The creation of job opportunities and income generation through the commercialization of added value products from organic agriculture in informal settlements, having the residents as its main source of workforce, can contribute to overcome food insecurity with environmental and economic sustainability. However, appropriate mechanisms and instruments for capacity building should be created and applied considering local cultural, economic and political contexts. The promotion of training and social empowerment of socially vulnerable groups is essential to not only develop autonomy and entrepreneurship, but also raise awareness, commitment and responsiveness, indispensable elements for supporting such approach. Urban regeneration actions can only be effective and authentic when combined with integrative systems of organization, fomenting community development and resilience.

Conducive policy framework: Accordingly, top-down efforts might create mechanisms to improve the coordination of UA activities scaling up and enhancing its benefits. In order to promote a pro-urban and peri-urban agriculture development strategy, there should be a cross-cut articulation between public sector, public institutions, private sector, civil society, development partners, among others. These articulations are better enforced, monitored and maintained by public policies that, in one hand, promote transparency in land governance, facilitating the access and use of land for agriculture production while preserving existing agriculture land; and in the other hand, guarantee

food and nutritional security by encouraging and supporting sustainable economic development of small scale farmers through their inclusion in the market.

Urban-Rural linkages: The development of economic synergies between urban farmers and small scale farmers in the peri-urban interface can structure urban-rural linkages that are fundamental to assist and secure agricultural use of land within cities. Correspondingly, these linkages are reinforced by the promotion of multifunctional aspects of agricultural use of land, exploring its ecological and cultural potentialities in addition to the direct benefits of production. Such approach is based on new spatial dynamics that apparently are setting trends in the urbanization process of mega cities, where the creation of productive landscapes in intra-urban and peri-urban land could help to improve urban growth.

Although São Paulo presents a level of institutional and policy support which encourages UA, through land use control mechanisms with incentives and restrictions for land owners, the findings from this research remarks important and relevant constraints that must be overcome in order to maximize and enhance the beneficial aspects of agricultural use of land, especially those related to profitability and competition with other uses, the low level of education of target communities, the lack of incentives for donors and sponsors who are interested in providing funding for such initiatives and the weaknesses and conflicts of the existing institutional patterns.

With regard to the question raised by this research, the project not only provided improvements in the quality of life of the local communities, as a strategy for social inclusion, food security, poverty reduction and local economic development, but also generated considerable advances both in the intra-urban and peri-urban open spaces by preventing the expansion of informal urbanization, promoting the social function of land.

The land management tools provided by the City Statute, the incentive to family farming through food security policies in Brazil, and the institutionalization of UA in the city of São Paulo ensures the consolidation of actions such as *Cities without Hunger and Community Gardens*, and seems to favor the replication of this multi level strategy approach.

The initiative has already called the attention of governmental authorities and planning decision makers, as it has proven to be a feasible strategy related to informal settlements redevelopment. The analysis of its strengths and weaknesses could lead to

the development of new models for upgrading programs, having positive impact on the built environment and also on the community empowerment and organization.

5.2 Recommendations and Contribution for the Urban Agriculture Casablanca Pilot Project 2: Informal Settlements and Urban Agriculture. Ouled Ahmed - Casablanca, Morocco.

Taking the best practices approach based on the *Cities without Hunger and Community Gardens* project in São Paulo and the considerations above presented, one can now ask: *Is there any specific aspect that could collaborate for the Urban Agriculture Casablanca Pilot Project 2 implementation in Ouled Ahmed?*

The Pilot Project 2 assumptions takes urban and peri-urban agriculture as the generator of productive, green and attractive spatial structures, offering possibilities to counteract urban sprawl while being an instrument for steering urban development and it is located in *Ouled Ahmed* on the south-western edge peri-urban area of Casablanca.

The area is currently subject to a considerable pressure from transformation and competition over land. Migration to *Ouled Ahmed* is driven by affordable housing at a location close to the city and the outcomes of this rapid increase in population are accompanied by an absence of infrastructure, high levels of unemployment, and a high pollution of agricultural land through waste. The existing open spaces are used as informal public space, as parking lot or as illegal garbage dump (Helten 2010).

However, parallel to the informal growth, the presence of multi familiar self-built one and two storey houses evidence that planned growth is in process too. North of *Ouled Ahmed*, on both sides of the road to Casablanca, the settlement *Madinat Rahma* has been planned, and construction has already started. Flats for a total of 6,000 households are to be built here, namely for ca. 30-40,000 inhabitants, partially as replacement housing for the inhabitants of the *bidonvilles* of *Dar Bouazza*.

The UAC research project structured two strategies to foster a bottom-up approach in *Ouled Ahmed*, one being the *Ferme solidaire*, a community garden managed by woman, and the other being the *Jardin Scolaire*, a school garden in collaboration with teachers and students. These actions aims to promote participation and cooperation with different stakeholders in different stages of the process: members from the Union of Associations, the owner of the *Hamman*, the residents, the school principal, teachers and pupils of the primary school.

Ferme solidaire

The *ferme solidaire* is a community garden initiated by the project in *Ouled Ahmed*, the piece of land was made available establishing an interim-use contract with the landowner as an instrument. The community garden is to be used to teach local women organic farming, giving them the opportunity to use agricultural produce to financially contribute to their households, with the intention to build up income generating activities. It is an important content that the women themselves would disseminate ideas of organic farming, healthy nutrition and sustainable practices in the area.

Jardin scolaire

The idea of the school garden, run by the primary school, is to give the pupils a facility to practice organic farming, enabling them to assimilate and then disseminate the idea of UA and the topics of healthy nutrition and sustainability. Furthermore, it is planned to provide pupils and teachers access to the internet by a computer system, which they can use to access a web based teaching module presenting an opportunity to familiarize them with aspects of climate variability and climate change. It is also on the scope of the project the treatment and reuse of the baths (*Hammam*) wastewater for the gardens' irrigation and the installation of thermal solar collectors replacing the existing wood-burning oven.

Associated top-down strategies for land management, tax systems, planning tools and related food security policies could help to enable and support UA bottom-up initiatives such as the PP2 in Casablanca, generating a favorable scenario with economic incentives and educative programs in which such practices could be expanded and reapplied in other areas.

With the recognition of agriculture as a land use category by the land-use plan for the Casablanca region ("*Schéma directeur d'aménagement urbain*" SDAU), adopted at the end of 2008, a first step has been made. The São Paulo case study shows that it is important to establish an independent governmental department responsible for policies, planning and development of UA, which should be linked to other supporting governmental institutions but also concentrate some level of decision making power to enable and assist UA initiatives. Another related issue to consider is the establishment of a forum or committee to foster participatory planning and implementation, ensuring commitment of all stakeholders involved.

Mechanisms in order to designate available and accessible land for agricultural use are necessary. Land mapping and subsequent establishment of an inventory data base could support the development of a zoning strategy to assure that a certain proportion of public and private land is suitable for agriculture.

The *Cities without Hunger and Community Gardens* project evidence that through temporary leasing of vacant and idle municipal and private land it is possible to establish community gardens based on tenure agreements between community gardeners and landowners with the NGO mediating the process.

The promotion of productive use in vacant private land is facilitated by the increase of municipal taxes on idle urban land; the Progressive Property Tax, Compulsory Building or Use, and Expropriation tools presented in this research are part of such strategy. Although in São Paulo there is no tax reduction for landowners who makes their land available for UA, instead their benefit is to not have their taxes increased avoiding also further expropriation. Still under this subject, attention should be given to taxes revenue from agricultural use of land.

At the same time, measures should be taken to preserve existing agricultural productive land integrating it into the urbanization process and protecting it from the negative impacts of informal and formal urban expansion. Land use control and effective measures against illegal subdivisions could be coordinated together with policies to provide technical and financial support to small scale farmers for scaling up their production and reach the consumers. In this sense, it is important to facilitate their application process for funding, raise their awareness about the importance to keep their agriculture production and promote the multifunctional aspects of agriculture combining it with other uses in order to strengthen the benefits of agricultural use and increase its competitive power with other more profitable uses.

These policies should be embedded into a food and nutritional security strategy program. To achieve food and nutritional security it is important to ensure the expansion of production conditions, especially for traditional and familiar agriculture, assisting the processing and commercialization of products, facilitating the supply and distribution of food by shortening the food chain and promoting protection mechanisms and incentives for domestic local production. The Brazilian food and nutrition security policies case study shows a promising initiative by linking the family farming production to the institutional food market.

SECTION 6

REFERENCES

6. REFERENCES

- Ali, Mubarak and Porciuncula, F. (2001) 'Urban and Periurban Agriculture in Metro Manila: Resources and Opportunities for Food Production', *AVRDC Technical Bulletin*, 26,
- Ananya, R. (2005) 'Urban Informality: Toward an Epistemology of Planning', *Journal of the American Planning Association*, 71 (2), 147-158.
- Assunção, J., (2006) *Land Reform and Landholdings in Brazil* Helsinki, Finland: UNU-WIDER.
- Azevedo, A. (1945) *Subúrbios orientais de São Paulo*, São Paulo: FFLCH.
- Binns, T. and Lynch, K. (1998) 'Feeding Africa's Growing Cities Into the 21st Century: The Potential of Urban Agriculture', *Journal of International Development*, 10, 777-793.
- Bonduki, N. (1994) 'Crise da habitação e luta pela moradia no pós-guerra', in Kowarick, L. (Ed.) *As lutas sociais e a cidade: São Paulo, passado e presente*, Rio de Janeiro: Paz e Terra,
- Caiado, A. (2003) 'Fim da Dicotomia Rural-Urbano? Um olhar sobre os processos socioespaciais', *São Paulo em Perspectiva*, 17, 115-124.
- CETESB (2010) *Companhia Ambiental do Estado de São Paulo* [online], available: <http://www.cetesb.sp.gov.br/> [05.10.2010].
- Cissé, O., Gueye, N. F. D. and Sy, M. (2005) 'Institutional and legal aspects of urban agriculture in French-speaking West Africa: from marginalization to legitimization', *Environment and Urbanization*, 17 (2), 143-154.
- CMSP (2001) *Comissão de Estudos sobre Habitação na Área Central*, São Paulo:
- Cole, D., Lee-Smith, D. and Nasinyama, G. (2008) *Healthy city harvests: Generating evidence to guide policy on urban agriculture*, Lima: CIP/Urban Harvest and Makerere University Press.
- Dantas, A. B. (2008) *Brownfield Redevelopment in Rio de Janeiro. Housing vs. Public Participation in the Manguinhos Area*, unpublished thesis, TU Berlin.
- FAO (2002) *Projeto Fome Zero: Report of the Joint FAO / IDB / WB / Transition Team Working Group* Brasília:
- _____, (2007) *Profitability and sustainability of urban and peri-urban agriculture*, FAO.
- _____, (2008) *Urban agriculture for sustainable poverty alleviation and food security* Rome:
- _____, (2009) *The State of Food and Agriculture*, Rome:
- _____, (2010) *The right to adequate food*, Geneva:
- FAO, IFAD and WFP (2005) 'Millennium Development Goal No. 1 - Eradication of poverty and hunger' accepted for *High-Level Dialogue on Financing for Development and the ECOSOC High-level Segment Roundtable Dialogue on the Eradication of Poverty and Hunger*: New York, 27 June - 1 July 2005.
- Fernandes, E. (2007a) 'Constructing the 'Right To the City' in Brazil', *Social & Legal Studies*, 16 (2), 201-219.
- _____, (2007b) 'Implementing the urban reform agenda in Brazil', *Environment and Urbanization*, 19 (1), 177-189.
- Fernandes, E. N. (2008) *Reprodução de pequenos agricultores no espaço metropolitano paulistano: uma análise da porção sul do município de São Paulo.*, unpublished thesis, USP.
- Ferreira, J. S. W. (2003a) 'Alcances e limitações dos Instrumentos Urbanísticos na construção de cidades democráticas e socialmente justas' accepted for *V Conferência das Cidades - Câmara Federal*: São Paulo, 02.12.2003.

- _____ (2003b) *São Paulo: O Mito da Cidade Global*, São Paulo: USP.
- Flick, U. (2009) *An introduction to qualitative research*, 4 ed., London: SAGE Publications Ltd.
- FomeZero (2010) *Projeto Fome Zero* [online], available: <http://www.fomezero.gov.br/> [04.09.2010].
- Frúgoli, H. (1998) *O centro, a avenida Paulista e a avenida Luiz Carlos Berrini na perspectiva de suas associações: centralidade urbana e exclusão social*, unpublished thesis, Universidade de São Paulo.
- Giseke, U., Kasper, C. and Martin-Han, S. (2009) 'Mega-Urban Open Spaces', *Topos*, 66 (114), 74-79.
- Gore, C. (2008) 'Healthy urban food production and local government', in Cole, D., Lee-Smith, D. & Nasinyama, G. (Eds.), *Healthy City Harvests: Generating Evidence to Guide Policy on Urban Agriculture*, Lima: CIP/Urban Harvest and Makerere University Press, 49-65.
- Helten, F., (2010) *Informality and social practices in peri-urban Casablanca. Exploring everyday life in Oulad Ahmed. Study within the context of the UAC-Project Casablanca.*
- IBGE (2009a) *Estimativas das populações residentes, em 1º de julho de 2009, segundo os municípios*. [online], available: http://www.ibge.gov.br/home/estatistica/populacao/estimativa2009/POP2009_DOU.pdf [23.09.2010].
- _____ (2009b) *Pesquisa nacional por amostra de domicílios 2009 - Síntese dos indicadores* Rio de Janeiro: Instituto Brasileiro de Geografia e Estatística.
- IDRC (2010) *International Development Research Centre* [online], available: http://www.idrc.ca/en/ev-92997-201-1-DO_TOPIC.html [02.09.2010].
- Iglecias, W. (2002) 'Impactos da mundialização sobre uma metrópole periférica', *Revista Brasileira de Ciências Sociais*, 17 (50), 47-70.
- InstitutoCidadania (2001) *Projeto Fome Zero: Uma Proposta de Política de Segurança Alimentar para o Brasil*, Ipiranga: Fundação Djalma Guimarães.
- Kowarick, L. (1994) *As lutas sociais e a cidade: São Paulo, passado e presente*, Rio de Janeiro: Paz e Terra.
- Lee-Smith, D. (2010) 'Cities feeding people: an update on urban agriculture in equatorial Africa', *Environment and Urbanization*, 22 (2), 483-499.
- Lefebvre, H. (1970) *A Revolução Urbana* Belo Horizonte: Editora UFMG.
- Leshner, C. (2009) *Urban Agriculture: A Literature Review*, Maryland: USDA.
- Lira, M. T. A., Reis, D. O., Drumond Jr., M., Taniguchi, M. and Bonilha, E. (2009) *Alguns Aspectos da Evolução da Mortalidade Infantil na Cidade de São Paulo* [online], available: http://www.prefeitura.sp.gov.br/cidade/secretarias/upload/saude/arquivos/mortalidade/Evolucao_Mort_Inf_Cidade_SPaulo.pdf [15.09.2010].
- Lovell, S. T. (2010) 'Multifunctional Urban Agriculture for Sustainable Land Use Planning in the United States', *Sustainability*, 2 (8),
- Macedo, J. (2008) 'Urban land policy and new land tenure paradigms: Legitimacy vs. legality in Brazilian cities', *Land Use Policy*, 25 (2), 259-270.
- Maricato, E. (1996) *Metrópole na periferia do capitalismo*, São Paulo: Hucitec.
- _____ (2000) 'As idéias fora do lugar e o lugar fora das idéias: planejamento urbano no Brasil', in Arantes, O. (Ed.) *A cidade do pensamento único-desmanchando consensos*, Petrópolis, RJ: Vozes, 121-192.
- Martin Han, S. and Pieschel, M. (2009) 'Sustainable Development of Megacities of Tomorrow: Green infrastructures for Casablanca, Morocco', *Urban Agriculture Magazine*, (22), 27-29.

- Matos, C. (2010) *Apostamos em Cidades próximas a São Paulo para crescer* [press release], 13.09.2010, available: <http://www1.folha.uol.com.br/fsp/mercado/me1309201015.htm> [27.09.2010].
- Maxwell, D. (1999) 'The Political Economy of Urban Food Security in Sub-Saharan Africa', *World Development*, 27 (11), 1939-1953.
- Maxwell, S. and Slater, R. (2003) 'Food Policy Old and New', *Development Policy Review*, 21 (5-6), 531-553.
- MDS, (2008) *Manual Técnico Para Elaboração Projetos De Agricultura Urbana E Periurbana*, Brasília: Coordenação Geral de Apoio a Agricultura Urbana.
- _____ (2010) *Ministério do Desenvolvimento Social e Combate à Fome* [online], available: <http://www.mds.gov.br/> [04.09.2010].
- Mitlin, D. (1992) 'Sustainable Development: a Guide to the Literature', *Environment and Urbanization*, 4 (1), 111-124.
- Mougeot, L. (1994) 'Leading Urban Agriculture into the 21st Century: Renewed Institutional Interest', *Cities Feeding People: An Examination of urban Agriculture in East Africa*, Ottawa: IDRC,
- Mougeot, L. J. A. (2000) 'Urban Agriculture: Concept and definition', *Urban Agriculture Magazine*, 1 (1),
- _____ (2006) *Growing Better Cities: Urban Agriculture for Sustainable Development*, Ottawa: International Development Research Centre.
- Mueller, B., Alston, L., Libecap, G. D. and Schneider, R. (1994) 'Land, Property Rights and Privatization in Brazil', *The Quarterly Review of Economics and Finance*, 261-280.
- NossaSãoPaulo (2010) [online], available: <http://www.nossasaopaulo.org.br/observatorio/analises.php?tema=14> [15.09.2010].
- Padilla, M. (1997) 'Food Security in African Cities: The role of food supply and distribution systems' accepted for *Food supply and distribution in francophone African Towns*: Dakar, 14-17 April.
- Payne, G. (2001) 'Urban land tenure policy options: titles or rights?', *Habitat International*, 25 (3), 415-429.
- Priemus, H., Rodenburg, C. A. and Nijkamp, P. (2004) 'Multifunctional Urban Land Use: A New Phenomenon? A New Planning Challenge?', *Built Environment*, 30 (4), 269 - 273.
- PROAURP (2010) *Programa de Agricultura Urbana e Peri-Urbana* [online], available: <http://www.sigam.ambiente.sp.gov.br/sigam2/Default.aspx?idPagina=7761> [04.09.2010].
- Quon, S. (1999) *Planning for Urban Agriculture: A Review of Tools and Strategies for Urban Planners* Ottawa:
- Rodenburg, C. A. and Nijkamp, P. (2004) 'Multifunctional Land Use in the City: A Typological Overview', *Built Environment*, 30 (4), 274 - 288.
- Rolnik, R. (1994) 'São Paulo, início da industrialização: o espaço e a política', in Kowarick, L. (Ed.) *As lutas sociais e a cidade*, Rio de Janeiro: Paz e Terra,
- _____ (2001) 'Reestruturação urbana da metrópole paulistana: a Zona Leste como território de rupturas e permanências', *Cadernos Metrópole*, 6, 43-66.
- Ruel, M. T., Garrett, J. L., Morris, S. S., Maxwell, D. G., Oshaug, A., Engle, P. L., Menon, P., Slack, A. T. and Haddad, L. J., (1998) *Urban challenges to food and nutrition security: a review of food security, health, and caregiving in the cities*, Washington, D.C.: International Food Policy Research Institute (IFPRI).
- Santandreu, A. and Lovo, I. C., (2007) *Panorama da agricultura urbana e periurbana no brasil e diretrizes políticas para sua promoção: Identificação e*

- Caracterização de Iniciativas de AUP em Regiões Metropolitanas Brasileiras*, Belo Horizonte:
- Santorio, P. F. and Bonduki, N. (2009) 'O desafio do parcelamento do solo a partir do periurbano: a composição do preço da terra na mudança de uso do solo rural para urbano' accepted for *XIII Encontro da Associação Nacional de Pós-Graduação e Pesquisa em Planejamento Urbano e Regional* Florianópolis - SC, Brasil,
- Santos, L. C. R. (2009) *Reflexão sobre o Programa de Aquisição de Alimentos e Agricultura Familiar no Nordeste*, Brasília:
- Santos, M. (1990) *Metrópole corporativa fragmentada: o caso de São Paulo*, São Paulo: EDUSP.
- SEHAB, (2007) *Plano Municipal de Habitação - Plano de Ação Regional Leste*, São Paulo:
- SEMPA (2004) *Plano diretor estratégico do Município de São Paulo: 2002-2012*, São Paulo: SENAC.
- Silva, H. M. M. B. (1997) *Terra e moradia: que papel para o município?*, unpublished thesis, USP.
- Singer, P. (1975) *Economia política da urbanização*, São Paulo: Contexto Editora.
- Smit, J. and Nasr, J. (1992) 'Urban agriculture for sustainable cities: using wastes and idle land and water bodies as resources', *Environment and Urbanization*, 4 (2), 141-152.
- Smit, J., Ratta, A. and Nasr, J. (1996) *Urban Agriculture: Food, Jobs and Sustainable Cities*, UNDP.
- Souza, M. V. d. (2003) *Colonizando a Periferia: zona Leste da cidade de São Paulo*, unpublished thesis, USP.
- Tellis, W. (1997) 'Application of a Case Study Methodology', *The Qualitative Report*, 3 (3),
- UAC (2010a) *Research Competition: Multifunctional Spatial Systems using Douar Ouled Ahmed as an Example. Competition Manual*, Berlin:
- _____ (2010b) *Urban Agriculture Casablanca - Evaluation Report 2010*, Berlin:
- UN-Habitat (2003) *The challenge of slums: Global report on human settlements*, Nairobi:
- _____ (2004) *Urban Land For All* Nairobi: United Nations Human Settlements Programme.
- _____, (2008a) *Land: a crucial element in housing the urban poor. Quick guide for policy makers.*, Nairobi:
- _____ (2008b) *Secure Land Rights for All*, Nairobi:
- _____ (2008c) *The State of African Cities 2008: A Framework for addressing urban challenges in Africa*, Nairobi:
- UN (2005) *Halving Hunger: It Can Be Done*, New York:
- _____ (2010) *The Millennium Development Goals Report*, New York:
- UrbanAge (2009) *Cities And Social Equity: Inequality, Territory and Urban Form*, London:
- USDA *Urban Agriculture: Differing Phenomena in Differing Regions of the World*, Beltsville: National Agricultural Library.
- _____ (2010) *United States Department of Agriculture* [online], available: http://afsic.nal.usda.gov/nal_display/index.php?info_center=2&tax_level=2&tax_subject=301&level3_id=0&level4_id=0&level5_id=0&topic_id=2719&placement_default=0 [15.09.2010].
- Viljoen, A., Bohn, K. and Howe, J. (2005) *Continuous productive urban landscapes: designing urban agriculture for sustainable cities*, Architectural Press.

- Vreeker, R., Groot, H. L. F. D. and Verhoef, E. T. (2004) 'Urban Multifunctional Land Use: Theoretical and Empirical Insights on Economies of Scale, Scope and Diversity', *Built Environment*, 30 (4), 289-307.
- Wehrmann, B., Palmer, D. and Fricska, S. (2009) 'Towards Improved Land Governance', *Land Tenure Working Paper*, 11,
- WorldBank (2005) *The Agriculture Investment Sourcebook*, Washington:
- Yin, R. (1994) *Case study research: Design and methods* Beverly Hills: Sage Publishing.
- Zeeuw, H. d. and Dubbeling, M. (2009) 'Cities, Food and Agriculture: Challenges and the way forward' accepted for *Agriculture, Food and Cities*: Rome,
- Zeeuw, H. d., Dubbeling, M., Veenhuizen, R. v. and Wilbers, J., (2007) *Key Issues and Courses of Action for Municipal Policy Making on Urban Agriculture*, Leusden: The Resource Centres on Urban Agriculture and Food Security (RUAF).
- Zeza, A. and Tasciotti, L. (2010) 'Urban agriculture, poverty, and food security: Empirical evidence from a sample of developing countries', *Food Policy*, 35 (4), 265-273.

SECTION 7

APPENDIX

7. APPENDIX

7.1 Appendix A – Survey Questionnaire

Introduction: The proposal is to discuss and analyze the possible interactions between agricultural activities in urban and peri-urban areas. Pointing out the impacts of urbanization on agricultural land in developing countries and the true scope that urban and peri-urban agriculture would have if applied as a policy instrument related to urban growth.

Considerations: The interviews were based on these following guiding questions; however, as open-ended interviews, these questions were not applied linearly but according to the natural flow of speech and the need, when observed by the interviewer, to include them throughout the conversation.

1. To which extent is urban agriculture an innovative strategy for the sustainable conservation of land?
2. How can urban agriculture be integrated as a crucial element of urban development, according to local conditions?
3. Does the Strategic Master Plan (PDE) of São Paulo include urban agriculture recognizing it as a land use category? Do the urban policies integrate urban agriculture into development plans?
4. Is there any governmental department or agency responsible for control, regulation and guidance to urban agriculture practices?
5. What are the possibilities and limitations for the integration of urban agriculture into urban planning and zoning?
6. What strategies are needed to improve the access to land for food production?
7. How can the beneficial aspects of agricultural land use be enhanced? Especially regarding the interrelation with informal settlements?
8. Is there an inventory of public land and is this information available?
9. Are there clear, fair and transparent land management rules for public and private land? Are they consistently enforced?
10. Does the land law respect the property rights of all and recognizes the various forms of land tenure including inheritance, customary and informal ownership schemes?

11. Does the government have clear, transparent and effective procedures for land use control mechanisms and expropriation?
12. Could Urban and Peri-Urban Agriculture be integrated into a strategy to contain / control / mitigate / qualify informal urbanization and collaborate to improve urban growth?

7.2 Appendix B - Interviews

7.2.1 AB1 - Interview with *Instituto Polis*

Interviewer: *Thiago Soares Barbizan*

Interviewed: *Mrs. Christiane Araujo Costa and Mrs. Paula Santoro*

Type of Interview: *Group Discussion*

Date: *14 September 2010*

Duration of the Interview: *1 hour and 40 minutes*

About: **Instituto Pólis** is a NGO dedicated to the study and formulation of public policies and municipal local development strategies in São Paulo

Transcript: *Paula aponta o preço da terra no limite do rural com o urbano para ver a valorização da terra no momento em que se dá a transição (rural/urbano). Uma questão matemática que está baseada numa racionalidade que tem a ver com a rentabilidade do uso do terreno. Os resultados da pesquisa que faço mostram que a rentabilidade agrícola, mesmo se não estivéssemos falando de agricultura familiar e sim de agronegócios, ela não compete com qualquer uso urbano. Qualquer uso urbano é mais rentável do que o uso agrícola. A maior rentabilidade encontrada no estado de São Paulo para terras agrícolas quando elas não têm mais produção e já estão completamente incorporadas nas expectativas de se tornarem urbanas chega entre R\$ 4,00 e R\$ 6,00 o metro quadrado. Num solo peri-urbano, que ainda produza, próximo a vias de escoamento, com toda a infra estrutura e com ótima localização para uso agrícola o terreno chega entre R\$ 2,00 e R\$ 3,00. Provavelmente o uso mais rentável próximo da agricultura seja a produção de flores, pois você precisa de pouca terra e alcança uma rentabilidade rápida e alta com a venda dos produtos. Quando você observa a agricultura familiar, ela não consegue formar um volume e uma importância que crie um cinturão para que o urbano não expanda sobre essa área. É difícil em termo de*

lógica capitalista de mercado, esse uso sobreviver. Onde que esse uso sobrevive? Na França tem uma mega ingestão de capital e subsídios para manter a atividade vinícola o que agrega ao produto o valor cultural e alcança uma rentabilidade muito alta. Para o a atividade agrícola permanecer é necessário uma conjunção de elementos que não estão ligadas apenas na rentabilidade, podendo ser subsídios governamentais ou, por exemplo, pagamento de Serviços Ambientais, instrumento que ainda o Brasil não incorporou. Outra possibilidade seria agregar valores culturais à tradição agrícola e a importância da agricultura familiar. O que é complicado em São Paulo, pois crescemos querendo ser urbano. Expandimos a cidade tranquilamente, e mesmo as pessoas que vivem em comunidades carentes ou assentos informais, não possuem uma ligação tão forte com a terra. A cultura alimentar do brasileiro é de supermercado. Não há uma valorização das hortas urbanas e da produção agrícola familiar.

Com relação à estratégia para conversar o solo. Mesmo se você tiver um projeto de agricultura urbana extremamente bem sucedido, com recursos e patrocinadores, se este projeto não estiver associado a uma política de inclusão social da população, ele não vai funcionar. Essa população migrante pelo menos na década de 90 ainda se dirigia para as franjas urbanas. Se não tem espaço nas áreas centrais elas vão buscar mais longe, e aí elas competem com a agricultura. Não é possível pensar uma política de agricultura se não houver uma política de inclusão. Que é a crise atual do Plano Diretor de São Paulo, que possui as ZEIS, porém várias ZEIS perto das zonas centrais não estão vingando. Somente as ZEIS na periferia que vingam em urbanização de favelas e de loteamentos clandestinos. Na Área de Proteção Ambiental, na Zona Sul próximo à área de mananciais possui o uso agrícola existente e ele foi reconhecido. Porém no processo de revisão do Plano Diretor existe a intenção de retirar as ZEIS das áreas centrais e aumentá-las na periferia, então a propaganda é aumentar o número de ZEIS. E outra questão seria retirar a o uso agrícola nas periferias, para abrir espaço para mais ZEIS para habitação. Estas áreas estão ameaçadas por uma pressão urbana constante e muito menos pelos riscos de permanência desse uso. Quando você cruza o uso agrícola com uma atividade residencial popular volumosa e metropolitana, difícil esse uso permanecer. Ao contrário também é difícil, fazer a agricultura entrar na cidade em áreas centrais, por exemplo, é extremamente complicado.

A mesma atenção dada à habitação seria necessária para deixar o verde entrar. E aí entra na questão da conservação do solo. Em São Paulo impermeabilizou-se praticamente todo o território, canalizou-se rios e a cidade se expandiu sobre eles. Como acontece então quando temos inundações. O sistema hídrico de São Paulo funciona da seguinte

maneira: os rios vão enchendo na Marginal Pinheiro e Tietê, uma das soluções é abrir as comportas dos rios e escoar a água para a represa Billings que serve tanto para o equilíbrio hídrico como para geração de energia e fornecimento de água potável para a cidade. Então São Paulo bomba o esgoto para dentro do reservatório que fornece água para tentar conter as inundações para evitar o alagamento da região mais valorizada da cidade e de uma relevância de nível federal para o escoamento de produção e circulação já que ali se encontram as principais vias e eixos rodoviários do estado. São Paulo está no limite, deixar o solo permeável para possibilitar a circulação e escoamento natural da água é praticamente impossível. Alimentamos o aquífero da cidade com o vazamento da SABESP, perde-se muita água limpa entre 28% e 30% da quantidade produzida no caminho da distribuidora até as residências. Essa água é lançada no aquífero e isso cria riscos futuros, pois estamos vivendo sobre um terreno que pode ceder e criar acidentes imensuráveis, pois essa água um dia vai aflorar. E a política da atual gestão é de criar reservatórios mais distantes, ao invés de lutar contra e abrir espaços na cidade fazer micro-políticas, oferecer incentivos para proprietários manterem áreas maiores permeáveis ou para projetos de agricultura urbana como estratégia de conservação do solo para tentar equilibrar esse sistema hídrico que está extremamente saturado. Lei 6766 parcelamento do solo. 10% a 15% da área do terreno devem ser permeável. No Brasil a discussão sobre pagamento de serviços ambientais ou de mudanças climáticas é muito limitada ao nível federal e à proteção da Amazônia, nunca no nível urbano. É necessário que haja uma mudança estratégica e inversão nessa escala para atingir os problemas nas áreas urbanas...

Há uma retomada da agricultura familiar devido à necessidade. Como política pública essa última gestão realizou uma tentativa de produção de uma política nacional de agricultura urbana a luz de um marco legal que foi construído em torno do alimento como um direito humano, acesso ao alimento saudável, alimentação orgânica, o Brasil maior consumidor de agrotóxicos. Mesmo assim ainda é um processo muito inicial, não existe muita literatura, pesquisa realizada ou sistematização do que já foi realizado sobre o tema no Brasil. Muito do que existe destaca a multifuncionalidade da agricultura urbana e a necessidade de uma visão sistêmica para que seja bem sucedida. Se você olhar só por um setor a conta nunca vai fechar. Por exemplo, do ponto de vista da rentabilidade somente a conta não fecha. É necessário e estratégico defender a visão sistêmica, porque na verdade a inter-setorialidade que daria mais sentido a isso.

Do ponto de vista dos hábitos alimentares, da saúde o que posso acrescentar (Christiane) é que segundo a pesquisa de orçamento familiar 2008 e 2009 mostra um

crescimento 2 pontos percentuais na questão do sobrepeso e obesidade, 49% das pessoas estão com sobrepeso e obesidade que é uma doença crônica não transmissível (hipertensão que dá um custo altíssimo para a saúde), então um país que tem metade da sua população em risco precisa de uma estratégia em relação a isso. Porque depois todas as decisões são a nível individual, não existe um programa nacional. Tem um problema na cultura alimentar. A agricultura familiar precisa encontrar aí uma oportunidade, pois a população em geral, não somente em comunidades carentes, precisa se alimentar melhor com mais frutas, verduras e legumes. O brasileiro come um terço do que deveria. Uma pessoa se alimentando 21 dias melhor o corpo já responde. Onde eu quero chegar é que, por exemplo, a rentabilidade da terra não compete com o uso urbano, mas quanto seria economizado na área da saúde? Muito complexo encontrar respostas, mas seria extremamente importante abordar essa questão.

Defende uma metodologia agroecológica, sustentável, da permacultura completamente orgânica. Com uma relação mais harmoniosa com a natureza, uma visão sistêmica de compostagem, reutilização da água, uma sustentabilidade presente em todos os procedimentos. Agricultura orgânica x agricultura agroecológica. A lógica da agricultura intra-urbana é uma, peri-urbana é outra e a agricultura familiar é outra, os conflitos e relações são outras. Temos o costume de colocá-las todas juntas sob as mesmas definições e perdemos a oportunidade de refinar o estudo de cada uma. No campo intra-urbano tenho visto muito a questão ambiental que transformam áreas degradadas em jardins e hortas.

São Paulo não possui política de abastecimento municipal ou estadual. A Secretaria de Abastecimento foi desativada e hoje se cuida apenas das 700 feiras que ocorrem na cidade de São Paulo, o que estimula a cultura do supermercado porque na verdade na lógica do mercado não precisa o Estado intervir porque a livre iniciativa pela lei da oferta e da procura promove o barateamento dos preços. A questão é que as frutas, legumes e verduras não chegam à periferia porque não existe o sacolão ou centro de distribuição na periferia, somente os hipermercados. Então existe essa questão: existe um programa de educação alimentar para as famílias na periferia sobre a importância de uma alimentação saudável, o que é até perverso, pois elas não têm acesso aos alimentos que deveriam fazer parte de sua nutrição. Então se existe uma política de Educação e Saúde Alimentar casado com uma política de abastecimento de cunho popular. A conta deve fechar por uma soma de resultados, pois se olharmos apenas por um setor nenhum deles vai responder totalmente.

Lei da Merenda. 80% da população brasileira moram em cidades, a agricultura familiar se não tiver uma aliança com o consumo consciente e com o mercado de distribuição de alimentos, é um segmento em extinção no Brasil. O país sobrevive apenas com o agronegócio. A agricultura familiar é responsável ainda por 60% dos alimentos que temos na nossa mesa, arroz, feijão, mandioca, milho, alface. É um dos países em que a força da agricultura familiar ainda é muito significativa, então apoiarem projetos para manter esse segmento teria além do ambiental e da saúde um forte aspecto social. Porque a maior insegurança alimentar é nas áreas rurais. Então você beneficia o agricultor familiar duplamente como produtor de alimentos e também consumidor da sua própria produção. Então existe esse projeto em que 30% do que é consumido na merenda escolar tem que ser adquirido da agricultura familiar de zonas rurais o mais próximo possível das escolas e creches para estimular o desenvolvimento local. O agricultor urbano, legalmente, não pode fornecer. Em Suzano, na região metropolitana de São Paulo estão tentando implantar, mas não estão conseguindo.

Outro problema identificado é que o agricultor urbano passou a perceber que a sua maior dificuldade é colocar o seu produto no mercado. Então eles passaram a se especializar em uma determinada produção e a grande maioria passa a praticar a monocultura. As prefeituras são grandes compradores, o mercado institucional de alimentos de comida para a região. Mas ainda não existe uma legislação para que isso se realize e a agricultura familiar ainda acontece muito na informalidade. Então o que pode segurar a agricultura familiar seriam o mercado institucional de alimentos e a conscientização sobre o consumo de alimentos orgânicos. Em qualquer supermercado tem a gôndola de alimento orgânico que é caríssimo e a população de baixa renda não compra. A lei dos 30% vai muito bem a cidades médias e pequenas. Dignificando agricultores, recupera a auto-estima. Por isso os ruralistas não queriam que fosse nem 30%. Primeiro porque a merenda escolar no Brasil é dominada por apenas quatro ou cinco empresas, por isso não interessa muito para eles a discussão dessa lei. O problema é na região metropolitana, onde está a agricultura aqui? Então a questão é do abastecimento vinculado ao mercado institucional de alimentos. Não deveria ser apenas a merenda escolar, mas toda compra pública de alimentos deveria garantir que uma porcentagem viesse da agricultura familiar, sendo assim um estímulo.

A agricultura urbana é contemplada no Plano Diretor como uma Zona. Existe a ZEIS. Existia o PROAURP, mas este se encontra desativado, é filiado a Secretaria do Verde. Já a peri-urbana (feiras) é do Abastecimento.

Se houvesse uma estruturação municipal e estadual para cuidar dessas políticas, seria muito eficiente. Brasil monocultura de cana, monocultura do café. Propriedade. A nossa formação urbana tem muito a ver com a nossa opção econômica no período colonial em que optamos por uma agricultura monocultura de exportação então as cidades no porto foram agregando as funções urbanas (terciárias) que permeavam a exportação, foram centralizando o que era urbano e não teve um desenvolvimento das cidades pequenas. Isso que vai originar a metrópole que não nasceu simplesmente de um boom industrial que se deu concentrado pois ali estava concentrado a mão de obra. No fundo a metrópole foi inviabilizando a agricultura urbana.

Momento de mercado imobiliário aquecido programa Minha Casa Minha Vida, com muito recurso para a habitação. 1 bilhão, para serem gastos até o final de 2010 para produzir um milhão de casas, sendo que 400 mil para a faixa de 0 a 3 salários mínimos. O que aconteceu? Existe uma pressão por área muito forte. Esse recurso vai através de financiamento até o beneficiário final que quer comprar uma casa, outra parte para empresas que vão construir e subsidio para pessoas com 0 a 3 salários mínimos. Resposta brasileira à crise econômica de 2008. Geração de emprego e diminuição do déficit habitacional. Esse programa em São Paulo teve um impacto violento no preço da terra inviabilizando qualquer projeto que não seja para atender classe média e média alta. Então se procura áreas disponíveis na periferia.

Transparência da Gestão do Solo. São duas coisas. Como reage a gestão do solo. Uma lei de IPTU progressivo. Tríade de instrumentos do Estatuto da Cidade. Parcelamento Compulsório: demarca no Plano Diretor as áreas para que elas entrem no mercado para que tenha uma utilização que seja parcelada ou construída. O proprietário então tem dois anos para construir ou parcelar ou dar um uso. Nas áreas de ZEIS esses terrenos que foram notificados têm dois anos para entrar no mercado. Se não entrarem cobra-se o IPTU progressivo, ou seja, vai cobrando o imposto sobre a terra progressivamente aumentando a alíquota até chegar 15% do valor do imóvel e se mesmo assim eles não parcelarem, não construírem ou não derem um uso, eles sofrem a desapropriação para título da dívida pública que é uma penalização que eles vão ganhando recursos à medida que os títulos são vendidos. Esse uso poderia ser agricultura, mas duvido que fosse. Perderia para estacionamento de veículos facilmente.

A lógica da rentabilidade se sobrepõe a menos que tenham outros interesses e a rentabilidade seja um deles. A APA mantém o uso agrícola. APA é uma unidade de conservação. Se houvesse uma reserva de terras para a agricultura seria mais fácil você desenvolver a atividade agrícola. O que aconteceu com o zoneamento de São Paulo.

Existiam reservas de terras agrícolas e rurais em São Paulo só que a gente cresceu irregularmente, então nem sempre ter a reserva de terra no zoneamento garante que esse uso impeça que o urbano entre ainda mais na nossa tradição de crescer irregularmente.

7.2.2 AB2 - Interview with *Incorporadora e Construtora Plano e Plano*

Interviewer: *Thiago Soares Barbizan*

Interviewee: *Mr. José Tadeu de Campos*

Type of Interview: *Personal Interview*

Date: *16 September 2010*

Duration of the Interview: *1 hour and 30 minutes*

About: *Incorporadora e Construtora Plano e Plano* is one of the largest real estate developer company in São Paulo, associated with Cyrela Brazil Realty, consolidating its participation in São Paulo's Metropolitan Region housing market.

Transcript: Mapeamento de lotes e galpões abandonados pelo cadastro de 120 corretores especializados em áreas para incorporação. São Paulo hoje está complicado para incorporação, pois os bons terrenos, os grandes terrenos já foram todos vendidos e estão todos edificadas. Hoje a prospecção de áreas para incorporação está sendo realizada nas antigas regiões industriais de São Paulo que estão deixando de ter um perfil industrial e essas empresas estão saindo de São Paulo por problemas logísticos e estes galpões estão sendo comercializados para incorporação. O problema que se enfrenta hoje é a contaminação do solo, não havia preocupação com essa contaminação até tempos atrás. Então, tanques enterrados, dispersão de gás, resíduos industriais e químicos que eram enterrados. Isso dificulta muito a recuperação dessas áreas para incorporação. Alternativa é procurar regiões com casas antigas e abandonadas que podem ser demolidas abrindo espaço para novos empreendimentos.

O zoneamento em São Paulo ficou muito restritivo principalmente depois do ultimo Plano Diretor de 2002. Ele está em processo de revisão, quando foi feito ele deu certa liberdade para as sub-prefeituras dos distritos lançarem os seus planos regionais que se tornaram muito restritivos., o que inviabiliza qualquer incorporação, você não tem como verticalizar hoje, por exemplo, na região de Itaquera e Penha que são dois bairros em expansão na Zona Leste, você tem um gabarito de altura que parte da seguinte lógica: a largura da rua mais o recuo frontal da sua edificação, dependendo do local você divide

por um e meio ou dois e encontra o valor que será o gabarito de altura. Então você precisa de terrenos muito grandes e profundos para poder edificar oito a dez andares. A especulação imobiliária elevou muito os preços dos terrenos, porém não foi levado em consideração pelos proprietários que a localização de seus terrenos não permite edificações em bairros como Mooca, Morumbi, Campo Limpo ou Lapa. O que foi muito prejudicial para esses bairros. A população está crescendo, porém migrando para cidades próximas. Como exemplo pode citar um empreendimento muito grande de quase 2.000 apartamentos em um bairro da cidade de Guarulhos, porém muito próximo a Penha em São Paulo, onde verificamos que 54% dos moradores desse empreendimento eram de São Paulo e desses moradores a grande maioria da região da Penha, porque nessa região não se pode realizar incorporação devido às restrições de gabarito.

Economicamente hoje você edificar na Penha ou Itaquera é muito difícil por serem regiões muito restritivas. Você pode edificar em certas áreas chegando a duas ou três vezes a área do terreno, mas você tem que pagar uma outorga onerosa para a prefeitura baseado em uma formula de calculo que dá em cima do valor de referencia e IPTU do terreno. Hoje por exemplo o gabarito vai de 1 a 2 acima de 2 você sempre pagará outorga ou em alguns casos você paga taxas especificadas pela prefeitura como por exemplo as operações urbanas com taxas diferenciadas. Eles criaram títulos que são leiloados no mercado, através desses leilões você pode adquirir potencial construtivo, entretanto esse potencial fica restrito apenas à região onde está a operação urbana não sendo transferível para outras regiões.

Outra restrição relevante imposta pelo Plano Diretor é que ele mantém algumas áreas como industriais e essas não possuem mais características ou atividades que justifiquem essa classificação. Áreas as quais as indústrias já abandonaram e que o entorno desses galpões está completamente habitado. E o Plano não acompanhou essa evolução. Então, São Paulo possui ilhas industriais abandonadas nas quais não se tem potencial de construção porque a prefeitura não permite que se edifique. Em bairros onde o entorno é nobre, como a Mooca por exemplo, onde já existe um movimento de permissão para edificação no entorno da antiga linha férrea onde existem diversos galpões do inicio do século que serviam para logística. Alguns elementos são tombados pelo patrimônio histórico como fachadas, chaminés e estruturas metálicas, porém existe já a discussão para liberação de edificações.

O Plano Diretor foi dividido entre as sub-prefeituras e seus planos regionais, dessa forma a outorga onerosa em que são oferecidos os potenciais de construção foram

definidos tantos metros quadrados por região. Em algumas regiões foi oferecido muito potencial como Moema, e muito pouco no Cambuci onde tem muitos galpões antigos e abandonados. Então, hoje não se constrói no Cambuci por falta de possibilidade de outorga. E é um bairro que está se expandindo na direção da Aclimação e do Ipiranga, totalmente servido de infra-estrutura, um local onde você poderia edificar para um padrão razoável ou dentro do segmento econômico. Então o Plano Diretor adensou regiões que já se encontravam adensadas e não contemplou regiões com potencial para adensamento, como Cambuci, Itaquera e Pirituba ou contemplar a revitalização de regiões degradadas como a Zona Norte e o Bom Retiro.

Terras públicas. Não se tem acesso ao inventário de terras públicas. Mas são muito suscetíveis a invasões de favelas. Essas áreas não são controladas. A Prefeitura possui Áreas de Proteção Ambiental que também são vulneráveis a invasões. Entidades de esquerda como Movimento dos Sem Terra se organizam para invadir essas áreas. Existem invasões em terras privadas também, mas é muito mais fácil de você solicitar reintegração de posse e a força policial retira essa população da área que são levados para albergues públicos e ali permanecem até encontrarem um espaço.

Hoje grandes áreas praticamente não existem. Essas invasões são organizadas. Não é mais aquela história do pobre migrante que chega a São Paulo em busca de um lugar... Hoje eles são muito usados como manobra política, infelizmente. Tem muito disso. Houve uma invasão recentemente em um terreno nosso e quando fomos verificar os lotes estavam demarcados, as ruas todas estruturadas e existia um levantamento planialtimétrico desse terreno. Quer dizer, alguém está por trás dessa organização praticamente profissional. Esse é um grande problema. Alguns desses ativistas já receberam seu pedaço de terra, mas continuam invadindo outras terras por terem um compromisso com o movimento.

Controlar expansões irregulares. É uma questão política. Isso vai muito de acordo com o governo que está na gestão. Por exemplo, São Paulo se é interessante para partidos de esquerda que queiram afrontar a prefeitura ou o governo do estado, acontece. Onde tem uma prefeitura do PT dificilmente tem invasão, quando a prefeitura é de outro partido as invasões acontecem. É uma manobra política. O Estado de São Paulo sendo PSDB sofre muitas invasões.

Como resolver esse problema. São Paulo recebe muitos migrantes. É praticamente inviável resolver esse problema em São Paulo construindo. A melhor solução seria desenvolver as regiões de onde eles vêm e oferecer empregos lá para manter essas pessoas lá. A CDHU aqui em São Paulo está desapropriando áreas para a construção de

habitações populares, porém em alguns casos é complicado pois a população que adquirem essas casas, alugavam essas unidades e voltavam para a favela.

Foi criado o programa Minha Casa Minha Vida pelo governo federal em que você dá subsídios para a baixa renda. Construções acima de 3 salários mínimos é possível e conseguimos fazer para vender, abaixo disso, que é o grande déficit habitacional do Brasil, a iniciativa privada não tem condições de fazer isso.

Já construímos dentro do plano Minha Casa Minha Vida, você vende e o mutuário recebe um subsidio de até 23 mil reais do valor do imóvel que é então pago ao incorporador. É impossível para o setor privado, para o incorporador acessar essa parcela da população devido ao custo. Hoje três salários mínimos é 1500 reais. O mutuário não pode comprometer mais que um terço de sua renda ou um quarto da renda. Então isso seria uma parcela de R\$ 300,00. O que é inviável para qualquer incorporador. O custo de terreno, mesmo que o terreno venha de graça, você não consegue. Então essa faixa de 0 a 3 salários mínimos deveria ser totalmente foco do Governo.

O problema é que a especulação imobiliária em São Paulo elevou os preços dos terrenos e dependendo a região o terreno não deve ser muito valorizado porque não fecha a conta depois, fica inviável construir depois para atender a renda da população da região. Principalmente quando se trabalha na classe econômica e popular, a renda é um fator decisivo para o sucesso de um produto. O importante é conseguir terrenos com preço bom de mercado, realizar um projeto bom e com conceito e edificar isso numa curva de obra mais rápido possível e colocando uma estrutura bem administrada para ter o menor custo possível e que atenda a renda do mercado alvo desse produto.

Inclusão da agricultura urbana no planejamento. A especulação imobiliária e o custo do terreno em São Paulo impede isso, algumas regiões mais afastadas principalmente na zona leste quando você segue em direção ao cinturão verde de São Paulo que é a região de Suzano e Mogi que possui grandes hortas que abastecem a cidade de São Paulo, mas essas propriedades rurais estão sendo ameaçadas pelo crescimento urbano. O adensamento em São Paulo é muito alto, esse tipo de práticas agrícolas ainda acontece em São Paulo, mas em uma escala muito pequena, em quintais devido às tradições da vida no campo trazidas para a cidade e em pequenas hortas.

Os incorporadores estão procurando terrenos no entorno da cidade, com essa procura essas terras serão valorizadas. E os proprietários estão olhando para isso de uma forma diferente. Eles estão pensando em vender essas áreas. E a especulação imobiliária aliada a expansão urbana vai acabar afastando as áreas de produção aumentando então o custo

do produto final. O mercado imobiliário está muito aquecido principalmente porque hoje tem financiamento.

Um terreno na Zona Leste, Aricanduva, Vila Formosa que há um ano custava R\$ 500,00 o m² hoje ele custa entre R\$ 1.000,00 e R\$ 1.200,00 o m², um terreno na Vila Nova Conceição que você comprava por R\$ 6.000,00 a R\$ 7.000,00 o m² hoje você não compra por menos de R\$ 10.000,00. Isso que está levando os incorporadores a saírem de São Paulo em busca de novas regiões para incorporar. Na região Peri Urbana próxima ao cinturão verde, esse valor cai para R\$ 150,00 o m² e com isso você consegue viabilizar um produto. Na região marginal pinheiros um terreno chega a custar R\$ 15.000,00 o m². Forte critica ao assistencialismo.

7.2.3 AB3 - Interview with *Secretaria Municipal do Desenvolvimento Urbano* (São Paulo's Urban Development Secretariat)

Interviewer: *Thiago Soares Barbizan*

Interviewee: *Mr. Felipe Francisco de Souza*

Type of Interview: *Personal Interview*

Date: *16 September 2010*

Duration of the Interview: *40 minutes*

About: **Secretaria Municipal do Desenvolvimento Urbano** drives government actions regarding urban planning and development in the municipality, responsible to develop, monitor and improve legislation related to the Strategic Master Plan (PDE), the sub regional plans, and the land use in São Paulo.

Transcript: Desvendar o que está acontecendo do ponto de vista agrícola e rural em São Paulo. Existe uma carta de crédito muito grande devido ao programa Minha Casa Minha Vida, há uma demanda muito grande por espaço então o que irá acontecer. As áreas agrícolas de São Paulo não têm condição de competir com produtores do interior ou grande produtor de outros estados. A tendência é de que essas áreas se tornem urbanas e se não for por um processo formal de uso e ocupação do solo será por um processo de ocupação informal. Muitos loteamentos.

Eu não acredito que exista uma pertinência em se estudar agricultura urbana na cidade de São Paulo, mas sim na escala da Região metropolitana de São Paulo. Tentar entender como isto está acontecendo em Suzano, Mogi, na região do ABC.

A cidade de São Paulo não fornece nenhum incentivo agrícola até para a indústria não existe nenhum incentivo.

As terras na região peri-urbana são muito vulneráveis, principalmente porque o Poder Público não tem um papel regulador de punir, a expansão informal e irregular de São Paulo se dá dessa forma. 2002 lei de anistia todos foram a favor porque São Paulo é uma cidade irregular. O proprietário de uma grande parcela de terras na região peri-urbana, que não precisa daquela produção para subsistência, não consegue competir com outros produtores para se integrar ao mercado, ele vai pensar em vender a sua terra. Em alguns casos incentivando invasões para então solicitar a Prefeitura a reiteração de posse. Ficando visível para o mercado imobiliário e aumentando o preço de sua terra.

Acredito nas ferramentas de gestão do solo, acredito em ferramentas para reduzir e conter expansão de assentamentos informais, agora se isso pode ser através da agricultura urbana, desconheço. Se você analisar o processo de crescimento populacional de São Paulo, são migrantes que vieram do campo em busca de melhores condições de vida e trabalho devido às más condições de vida no campo. Então questiono se essas pessoas realmente saberiam cultivar a terra. Também não sei se em uma favela teria espaço para isso.

O Brasil hoje é um grande exportador de alimentos para o mercado estrangeiro. Baseado em grandes latifúndios e produtores que possuem alta tecnologia para competir pelo melhor preço. A agricultura familiar tem pouca relevância nesse processo. São Paulo não tem mais quantidade de terra que seja suficiente para competir com esses produtores. Porém para um consumo regional talvez São Paulo consiga competir em hortaliças por exemplo. Outro problema é que agricultura é tecnologia e herança. Tradição de cultivo da terra.

1860 Lei de Terras. O Brasil foi construído em cima da distribuição desigual de terras e da elitização do acesso à mesma. Constituição de 1988 reforma urbana, reforma fundiária, estatuto da cidade, função social da propriedade. Instrumentos do Estatuto da Cidade incorporado no Plano Diretor, IPTU progressivo contra especulação.

Em São Paulo as últimas duas gestões não foram favoráveis a uma distribuição equitativa dos custos e benefícios do desenvolvimento urbano, foi para favorecer certas classes, as classes médias tem mais dificuldade. As mais baixas ocupam as terras, o poder publico tem que fazer esforços para regularizar essa área. Quem se beneficia são as elites.

Atualmente em São Paulo a questão de justiça fundiária não está cumprida, o poder público leva a infra-estrutura, espraiamento das funções urbanas, diferença de preço muito grande entre os valores da terra levando à injustiça ao acesso a terra.

Gestão Fundiária não é transparente. Acesso a informação não é facilitado. Todos os esforços que foram feitos para a realização do Levantamento Cadastral Fundiário a burocracia e as elites fizeram algo para que barrassem esse processo. O levantamento fotográfico realizado entre 2002 e 2004 até hoje não foi terminado e não foi disponibilizado. 50% do levantamento não se têm certeza de quem seja o proprietário, cartórios tem o direito de não disponibilizar informações sobre propriedades. O Estado e o Privado foram sempre muito promíscuos porque as elites que entram no poder ocorre um favorecimento de certos grupos no acesso a aquisição de terras e concessões de usos. Enfrentamento entre as elites quando se revela os proprietários.

Desapropriação de terras. Gentrificação. Desapropriar 22 quadras para construir o projeto. Nova Luz. Batalhas jurídicas. Burocracia e tempo. Legitimação é mais importante do que o direito propriamente dito. Permitido inclusive pela constituição federal, usucapião. Reflexos da injustiça histórica em que o país foi construído, a desigualdade, a raiz do Brasil foi essa.

Fortes críticas ao assistencialismo. Ninguém quer entrar para o mercado formal para não perder seu cadastro em programas assistenciais. Sua pesquisa em São Paulo vai ser extremamente pertinente, pois ninguém fez um panorama da questão agrícola na região metropolitana, não acredito que haja espaço para uma cultura de produção agrícola em pequena escala para a cidade de São Paulo. Talvez você possa apontar que existe realmente alguma coisa acontecendo ou não.

7.2.4 AB4 - Interview with Cities without Hunger and Community Gardens Project NGO

Interviewer: Thiago Soares Barbizan

Interviewee: Mr. Hans Dieter Temp and Mr. Francisco Assis Neto

Type of Interview: Group Discussion

Date: 18 September 2010

Duration of the Interview: 4 hours

About: Cities without Hunger and Community Gardens Project NGO seeks to attenuate the situation of socially-endangered groups living in areas of great demographic concentration. This sustainable development initiative not only improves these communities diet with healthy and nutritional food, but also provides them with capacity building programs, job and income generation.

Transcript: Rua Francisco Usper, Jardim Tietê. O bairro se chama Sapopemba pertence à macro região de São Mateus, Zona Leste. A horta existe há dois anos e meio ou três anos, e essa área aqui pertence à Transpetro, é onde correm os dutos de petróleo há três metros de profundidade, que são bombeados no porto de Santos e seguem para as refinarias. É uma área em que não se pode construir, não pode fazer campo de futebol, não pode fazer playground, só que projetos de horta podem. As hortaliças plantadas possuem raízes muito superficiais e, portanto, não são prejudicadas em sua qualidade. E para a Transpetro é interessante ter hortas nas faixas de dutos, pois assim eles não precisam se preocupar com manutenção, limpeza de terreno, ou até invasões.

Depois de feita a proposta levou-se quase um ano pra conseguir o contrato de utilização da área. Após a Transpetro verificar os resultados positivos do projeto, eles ofereceram mais km de faixa de terreno para possíveis novas intervenções. Mas não adianta em nada começar várias outras hortas sem ter os recursos necessários para mantê-las.

O bairro no entorno possui uma população estimada de 30 mil pessoas. A horta é ainda muito pequena para atender essa demanda. Essa horta atende treze pessoas. São as pessoas que trabalham, produzem e vendem. Foi criado um ponto de venda na favela, que também distribui o que é produzido em áreas periféricas mais distantes, produz-se lá e trás para vender mais nas áreas urbanas, gerando oportunidade de trabalho na periferia e também na favela.

Toda a estrutura para montar o projeto é a Organização Cidades Sem Fome que paga, carros, combustível, funcionários, maquinários, mudas, fertilizantes naturais... Todo o resultado da comercialização é distribuído entre os beneficiários. Digamos que essa horta gere 5.000 reais por mês. Esse valor é dividido por essas treze pessoas multiplicado pelo número de dias que cada pessoa trabalhou, pois é uma forma mais justa de dividir o valor. Por exemplo, uma pessoa pode ter outro emprego, outra atividade que ela já tinha antes do projeto das hortas em dois dias na semana, o projeto incentiva que ela continue com esse emprego, que já é uma fonte de renda, mas que dedique os outros dias à horta. Eles colhem pela manhã e levam os produtos frescos para o ponto de venda, onde é vendido pelo preço de mercado normal. Apesar de serem produtos completamente orgânicos e sem nenhum fertilizante químico, que por isso poderiam ser vendidos por um preço mais alto, este não é o foco do projeto. O público que temos aqui são pessoas de baixa renda, então não adianta você vender um pé de alface por R\$2,50 que não vai vender.

Como o projeto tem recursos subsidiados pelos patrocinadores, a gente tem que oferecer um produto de qualidade para as pessoas pobres da comunidade. Não adianta nada recebermos dinheiro da Petrobrás, produzir aqui e vender para a mulher do embaixador lá em Higienópolis. Não é esse o foco. O foco é você fazer um projeto social em uma comunidade carente, que atenda e traga benefícios pra essa população carente, não só benefícios financeiros, mas também nutricionais e sociais, e que eles tenham produtos bons e de qualidade acessíveis aos recursos que eles têm.

Não existe problema de venda por enquanto tudo o que é produzido é vendido. Porém existem múltiplas opções futuras, como criar uma horta somente para revender produtos orgânicos para outro público com maior renda, mas isso demanda mais recursos, um planejamento de logística, caminhão climatizado... Outra alternativa seria a venda de produtos para instituições como creches, hospitais, escolas... até porque saiu um decreto que 30% de toda a merenda escolar deve ser comprada de agricultores familiares. Então dá pra participar de programas governamentais, porém no momento a comercialização dos produtos está indo bem, pois estamos em uma cidade de alto poder de consumo que é potencializado pela quantidade de pessoas que vivem aqui nas periferias.

O importante, portanto, é manter as hortas próximas às comunidades, pois a cultura alimentar do brasileiro é realizar a compra para o mês, porém hortaliças não podem ser compradas em grandes quantidades devido ao nosso clima. Portanto essa produção local de alimentos faz com que a exista sempre a oportunidade de comercialização por ter

sempre o produto fresco disponível todos os dias, e a pessoa não precisa se deslocar para longe para poder comprar. A comunidade como uma fonte de recursos.

Como a horta local não possui tudo que atenda a demanda da comunidade, as hortas grandes da periferia abastecem todas as manhãs os pontos de venda locais com produtos diversificados. Então, por exemplo, se aqui é vendido um pé de alface que veio da outra horta. 50% do valor da venda é do produtor, 50% é do pessoal daqui que vendeu. Gerando emprego e renda tanto na área urbana quanto na área periférica. E a tendência é que cada vez mais a urbanização alcance a periferia e cada vez mais essas áreas serão adensadas. Então vai sempre existir oportunidade para geração de renda e empregos.

Os projetos sempre são implantados a partir de uma demanda, a partir de um pedido. Uma vez a líder comunitária ligou pra gente dizendo que havia esse espaço dos dutos de petróleo e que a comunidade queria uma horta. Em seguida veio a fase de viabilização de recursos, para você não prometer e não poder cumprir e atender as expectativas. Na época conseguimos aprovar o projeto na seleção pública da Petrobrás. O próximo passo foi viabilizar a área, ter o contrato de utilização o que levou um processo de oito meses. Quando tínhamos os recursos e a legalidade de utilização dessa área assegurada, organizamos em um final de semana uma para a apresentação do projeto para a comunidade na escola próxima. Nessa reunião o projeto é apresentado, as hortas existentes são mostradas, as metas e objetivos do projeto são explicados, bem como as obrigações do projeto e a contrapartida esperada dos participantes. Ao final da reunião as pessoas interessadas em se envolver no projeto assinam uma lista que posteriormente é avaliada por uma assistente social, que realiza uma seleção seguindo os critérios da Organização Cidades sem Fome que é atingir as pessoas que mais precisam, ou seja, os mais sócios economicamente vulneráveis.

Um grande desafio é a baixa escolaridade das pessoas. Quase a maioria das pessoas que trabalham com a gente ou elas são semi-analfabetas ou completamente analfabetas, ou pessoas que nunca trabalharam de carteira assinada. E a maioria veio da coleta seletiva de lixo. As capacitações são muito em oficinas práticas, então não tem como fazer uma reunião para mostrar ph do solo, quanto de ferro... não serve. Então temos que criar oficinas com os técnicos que já possuem experiência e esse pessoal vai junto para aprender. Então esses técnicos capacitam o pessoal muito mais na prática do que na teoria. Temos diversos cursos, desde como produzir, como trabalhar a terra, comercialização, contabilidade, gestão... Por exemplo, a Ivone, não sabia nem como devolver troco em uma venda. Então, é um processo de aprendizado. O Sr. Zé veio de Sergipe e ele tinha experiência em como plantar milho, arroz, feijão, mas nunca havia

trabalhado com hortalças, então ele passou por uma capacitação. Por isso que projeto social no Brasil é muito caro. A falta de capacitação técnica das pessoas é muito grande, não existe nenhuma contrapartida. O investimento vai todo no treinamento das pessoas, pois tem que se começar do zero.

Essa horta já está caminhando para a auto-sustentabilidade, a idéia é que eles mesmos depois dessa implantação e parceria com a horta da periferia eles consigam chegar a uma auto-sustentabilidade tanto financeira como de gestão, sem a necessidade de investimentos por parte da organização.

Antes da implantação da horta neste terreno, ele era abandonado e possuía o mato muito alto, era usado como depósito de lixo, esconderijo para furtos, tráfico de drogas. Hoje o espaço é revitalizado e se tornou um ponto de referência na região. A idéia no futuro então é fazer essas grandes produções na periferia, apoiadas por essas vendas locais com preços super acessíveis.

Então o que é que é isso? É treinar as pessoas a serem empreendedoras. Criar um negócio, que daqui cinco, seis anos... a gente tenha uns 50 pontos de venda na cidade de São Paulo. Será um contingente de pessoas empregadas muito grande. É um processo muito lento, pois você sempre depende de recursos para fazer tudo. A Organização Cidades Sem Fome, a gente por mais recursos ou parcerias que faça, a gente sempre vai ser um grão de areia no meio do deserto, mas a idéia nossa é fomentar esse modelo para as políticas publicas. E nós conseguimos aprovar um projeto na Secretaria do Meio Ambiente (FEMA) justamente para recursos para fazer esse tipo de projetos.

Criar um modelo que um dia as políticas públicas possam adotar para criar um programa municipal, estadual, federal. Você fomentar uma idéia, um projeto, que um dia vire uma política pública. Ou não. Mas que o Poder Público abrace isso e formate da maneira que achar melhor. Pois isso é uma iniciativa quase particular da ONG, que nós estamos conseguindo viabilizar e a idéia é que um dia alguém abrace isso e amplie para um programa Fome Zero por exemplo.

Intenções de ampliação do alcance das hortas. Hoje a ONG possui recursos para manter 21 hortas em São Paulo, o que ainda é pouco para a demanda. Por isso a ONG agora planeja busca recursos em organismos grandes como FAO, Banco Mundial, União Européia, Avina, Cities Alliance, você consegue multiplicar isso em duas ou três vezes. E aí você teria muito mais força para convencer o Poder Público. A Organização Cidades Sem Fome conseguiu sozinha recursos da Petrobras, Fundação Inter-Americana, Avina, enfim, então tá na hora de provocar o poder público para virar um

programa, você ter força para mostrar para uma prefeitura, um governo do estado, o governo federal, de que é possível.

O projeto está constantemente na mídia, então chama a atenção de muita gente, proprietários privados, poder público, ligam oferecendo áreas para hortas. Essas áreas são cadastradas. À medida que a ONG capta recursos, entra-se em contato novamente com esses proprietários e uma vistoria é realizada no terreno, para averiguar se está contaminada, se possui água e os demais requisitos técnicos para implantação da horta.

Em São Paulo a ONG não encontra o conflito da terra pra produção agrícola na periferia. Em São Paulo existe muita terra devoluta e vacante que pode receber o projeto e a ONG não encontra dificuldade em acessar essas terras. Porque os detentores dessas áreas, Prefeitura ou áreas particulares eles têm medo da invasão. Depois que um terreno é invadido, para tirar esses invasores somente através de indenização. Se você tiver um projeto no seu terreno você leva benefícios indiretos para quem quer que seja o proprietário.

Qual a característica da cidade de São Paulo? Indústria e prestação de serviços. Eles não conseguem entender que dentro de uma metrópole isso pode ser feito. A mentalidade do poder público ainda não consegue alcançar isso. Que você consegue gerar alimentos na cidade ou nas proximidades da cidade, pra isso chegar a um custo menor, com qualidade melhor para as pessoas. Em uma comunidade como esta aqui, de 60% a 80% da renda mensal dos moradores são gastos com alimentos. E porque ainda não existe um programa para incentivar a produção de alimentos? Por causa disso, existem vários outros programas. O Poder Público está fazendo alguma coisa para combater a fome. Mas são programas paliativos, assistencialistas. O Restaurante Popular, por exemplo, é legal, mas é um programa totalmente subsidiado, você ter uma alimentação a R\$1,00. Mas isso custa mais R\$6,00 para os cofres públicos e quem paga isso é o contribuinte. Então é um programa bom, mas é um programa assistencialista que não possui uma sustentabilidade. Num momento de crise, que verbas precisem ser cortadas, esse programa morrerá. E a produção de alimentos ela é contínua, depois da capacitação e o alcance da sustentabilidade, ele segue sozinho.

Mas pelo avanço da agricultura urbana como conceito em outras cidades brasileiras, e em outros países como Canadá e Japão, já demonstra uma busca por essa alternativa e acredito que no futuro as pessoas vão investir nisso.

PROAURP. Eles não sabem como gerir. Não conseguem deslanchar o programa. Já existiram diversos programas de agricultura urbana, na época do Franco Montoro, mas o esquema era fornecer a semente e a enxada e não tinha ninguém por trás para fornecer

capacitação, para assistir o projeto. E o PROAURP é quase isso, ele fornece a semente, as ferramentas, mas não acompanha. Por isso a ONG trabalha sempre a parte financeira, para que os nossos técnicos estejam sempre lá para orientar, ensinar, corrigir e incorporar neles a questão da sustentabilidade.

E o Poder Público encontra dificuldade em fazer a coisa acontecer, pois possui capacitação técnica (agrônomos), mas essas pessoas nunca tiveram contato com a terra, nenhum agrônomo vai fazer o que um técnico da ONG faz de pegar uma enxada e cavar um canteiro.

A horta doa alimentos para uma creche. Essa creche emite um recibo. Esse recibo vai para um órgão CONAV que fatura esses produtos. 100 kg beterraba, dando 200 reais, desse valor a CONAV deposita numa cooperativa que tem parceria com a ONG, e a cooperativa deposita a quantia na conta de um dos agricultores. Já tem 5 pessoas nesse esquema.

Faturamento. Na Horta Jardim Tietê em um mês cada um dos treze participantes faturaram R\$612,00. Antes esse pessoal, a maioria trabalhava na reciclagem, PET, eles ganhavam de R\$70,00 a R\$80,00 por mês. E os participantes da horta também podem levar pra casa alimentos para o auto-consumo sem custo nenhum.

Benefícios nutricionais. Antigamente a alimentação da população era feijão, arroz, farinha e alguma mistura quando tinha dinheiro, frango, carcaça de frango ou salsicha. Atualmente temos uma nutricionista que as vezes fornece cursos de reaproveitamento alimentar, melhoria nutricional. E ficamos surpresos com o potencial de reaproveitamento de alimentos e novas experimentações que eles alcançaram. Pelo fato de elas terem produtos próximos a casa, a população se sente mais segura para tentar novas receitas. Beterraba, escarola, catalonha, salsa. Mudança de hábitos alimentares.

Valorização Social. Respeito. Percepção Social. Cidadania. A horta possui um charme e um romantismo que valoriza a cidadania de cada envolvido. Ainda altera a estética do lugar, e ameniza os conflitos entre as famílias que são em sua maioria completamente desestruturadas. No começo havia uma grande preocupação em deixar a vida particular fora do projeto para não deixar que esses conflitos afetassem a produção e andamento da horta. E com o tempo verificamos que a horta ajuda muito a melhorar esse relacionamento unindo mais as pessoas.

A maioria dos envolvidos são mulheres, pois os homens são mais idosos e possuem pouca escolaridade. O homem quando participa do projeto, a idéia é que ele tenha um emprego estável e que a horta seja um 'trabalho temporário'. Para que ele possa assistir melhor a família dele. Então o homem ele trás essa responsabilidade.

São áreas pequenas, mas possíveis de intervenção. É uma área particular. Antigamente era um enorme matagal. Jogavam lixo, animais mortos. O dono do terreno não usava para nada e tinha problemas com manutenção. O proprietário emprestou para o projeto. E a hora que ele precisar do terreno de volta, eles tem todo o direito de pegar o terreno. E a ONG precisa ir procurar outra área. Neste caso, o proprietário e sua família é um dos maiores consumidores da produção da horta. Ao lado vive um casal de idosos que cuidam dessa horta. Somente nessa horta esse casal já tirou mais de R\$500,00 por mês vendendo hortaliças aqui através de venda direta. Cada pé de escarola é vendido por R\$2,00 em um canteiro com 36 pés ele fatura R\$70,00. O projeto é altamente rentável. E você confere uma função social a um terreno, mesmo sendo uma área particular.

Uma ONG deve ser administrada como uma empresa. A meta, o objetivo é diferente. Mas a gestão é como uma empresa. O benefício, o resultado final, demora para aparecer. Mas o resultado está super bom.

Zona Leste, Terceira Divisão. Suzano, Cidade Tiradentes. Ribeirão Pires. Mauá. A maior dificuldade é a comercialização, por estar isolado em uma área periférica mais distante. Não possui acesso fácil ao mercado. O Chico possui a técnica de produção.

A área deve ser preservada, por ser área de mananciais. Mas São Paulo está crescendo muito em direção às periferias. E qual o problema de São Paulo? Zona Sul possui a represa Guarapiranga, não tem como fazer empreendimentos populares. E lá o Plano Diretor protege como área de manancial. Aqui está como área de manancial no contexto, mas não no Plano Diretor. Então o que vai acontecer? A COHAB, CDHU, as grandes construtoras vão procurar cada vez mais essa área. Devido ao programa Minha Casa, Minha Vida, os investimentos serão absurdos e essas instituições vão precisar de grandes áreas para desenvolver seus empreendimentos e incorporações. A viabilidade econômica de um empreendimento desses começa com 30 blocos de apartamentos. Eles precisam de áreas com 2.000 ou 3.000 metros quadrados, e não se acha mais isso na faixa urbana, isso será tudo na área periférica. E áreas como esta daqui é ideal para isso. Essa estrada será um acesso ao Rodo-Anel, a logística para as empresas vai expandir então essa área será tomada por condomínios populares ou empresas que irão se instalar aqui. Então essas pequenas áreas de agricultura vão desaparecer. As áreas que serão urbanizadas perdendo a sua função agrícola serão as mais próximas a rodovias. A agricultura Peri urbana ainda é viável em São Paulo porque ainda existe muita área.

Mas um problema é que as grandes redes distribuidoras, os grandes supermercados, preferem comprar de um grande produtor de outro estado do que de 10 pequenos produtores da periferia. Pois eles querem a macro-produção. Para eles é mais vantajoso

emitir uma nota fiscal apenas para um único produtor rural, que tenha uma produção de larga escala e que possa atendê-los constantemente, já que precisam de produtos frescos e em grande quantidade sempre em suas lojas. Então ele prefere ter apenas um fornecedor, e isso tem impacto no preço do produto e também no meio ambiente.

Outro problema é que os pequenos produtores estão muito mal estruturados. Nem todos possuem um trator ou equipamentos, ou seja, no verão eles conseguem produzir, mas nas estações chuvosas não. E os grandes distribuidores precisam de produtos o ano todo. Logo os pequenos agricultores urbanos não conseguem atendê-los por não ter tecnologia e infra-estrutura. Talvez se os pequenos produtores rurais se organizassem em uma cooperativa de 10 produtores ativos com um histórico de um ou dois anos de produção comprovando ao BNDES que esse grupo está consolidado e possui uma produção forte, como uma contrapartida a oferecer. Você consegue um financiamento. O que acontece é que aqui cada um trabalha por si, ninguém estuda o mercado. E a agricultura é um empreendimento como qualquer outro e deve ser tratada assim. Logo, é necessário uma articulação entre um grupo de produtores com uma proposta relevante para buscar recursos junto ao governo.

Temos um conhecimento adquirido que nos dá a segurança de que o projeto se tornará sustentável. O coordenador possui grande conhecimento da parte administrativa e captação de recursos. Os técnicos já estão muito bem treinados e são capazes de transmitir esse conhecimento sobre a produção de hortaliças e mudas. Estamos muito avançados. Os agricultores podem não ser capazes ainda de reaplicarem sozinho esse modelo de produção em outro lugar, mas são capazes de transmitir o conhecimento. Certa vez nos disseram que precisaríamos de agrônomos envolvidos no nosso projeto. Mas eles são profissionais muito restritos a questões técnicas. Eu prefiro pagar bem os meus técnicos que vão e colocam a mão na terra.

Porém é muito difícil trabalhar com esse público, que não oferece nenhuma contrapartida. Eles possuem uma vida muito difícil e muitas limitações. Histórico de vida muito complicado, falta de escolaridade, religiosidade e principalmente falta de ambição. Eles não percebem que eles podem mais. Este problema é agravado pelos programas assistenciais do governo, como por exemplo, a “Bolsa Família”, pois gera certa passividade e conformismo nas pessoas e também colabora para a falta de ambição. Devido a essas condições eu não posso exigir dos agricultores uma produção fixa para atender um grande distribuidor ou que eles tenham percepção mais aguçada para negócios. Estamos bem, mas acredito que se não fossem tais limitações as pessoas envolvidas poderiam estar num patamar muito mais elevado financeiramente. E acredito

que os técnicos estão prontos para transmitir esse conhecimento e ensinar outros como implantar esse modelo e quais foram os benefícios para as vidas deles.

Isso gera outra dificuldade na captação de fundos e patrocínios. Por exemplo, os bancos que geralmente exigem em contrapartida a geração de uma quantidade de empregos, uma produção fixa de hortaliças e que os agricultores possuam uma conta bancária com eles e que gire certo montante ao mês. É complicado convencê-los de que a contrapartida não será econômica ou empresarial, mas sim de marketing e divulgação de marcas. Outro problema identificado é a grande quantidade de departamentos e secretarias públicas responsáveis pelas práticas de agricultura, o que dificulta processos devido ao exagero de burocracia e também a falta de comunicação e integração entre essas instituições.

Sem parcerias, nada acontece. Acredito que se em um ano você consegue dois patrocinadores, no ano seguinte obrigatoriamente você deve ter no mínimo quatro. Quando você começa uma ONG com um projeto social como o nosso, quando você não tem quase nada as suas despesas são muito pequenas. Com o trabalho você consegue patrocinadores e compra um caminhão, um trator, enfim, equipamentos ou infraestrutura para sustentar o projeto. Então você passa a ter custos diretos disso, como manutenção, combustível, seguro, impostos... Isso cria uma necessidade eminente de conseguir recursos para manter. Chegará uma hora que precisaremos de mantenedores apenas para financiar os custos e despesas de operação, administração e manutenção do projeto. Não temos receita própria. Dependemos disso.

No Brasil não existe incentivos fiscais para patrocinadores. Existem apenas duas leis que permitem dedução de imposto de renda, uma é a lei para projetos culturais e outra para o esporte. Os patrocinadores do projeto Cidades Sem Fome não recebem nenhum incentivo do governo, nenhuma contrapartida. Existe uma dificuldade para captar recursos privados para o projeto, existe muito interesse de pessoas no exterior em patrocinar nossas atividades, porém não compensa para eles devido ao fisco Brasileiro. Em algum momento da nossa história vou precisar abrir uma filial na Alemanha para que possa emitir recibos dedutíveis no imposto de renda.

Importância dos patrocinadores.

Agricultura Urbana como ferramenta de contenção de crescimento de favelas. Sim. Isso deveria estar no Plano Diretor ou que a cidade oferecesse incentivos para o uso dessas terras vazias e abandonadas. A Secretaria de Finanças junto com a Secretaria do Trabalho e a Secretaria do Meio Ambiente aprovariam um projeto de lei que oferecesse

um incentivo de abatimento de imposto IPTU. Seria uma maneira de beneficiar o proprietário da terra e ao mesmo tempo a cidade criaria um vínculo com os contribuintes. Ao invés de o proprietário abandonar a terra e gastar muito dinheiro com processos de invasão. Destinar um uso competente para a terra, ninguém invadiria ou jogaria lixo. O que falta é o poder público identificar novas maneiras de controlar invasões. Em minha opinião a melhor maneira é oferecer incentivo em dinheiro. Possibilidades existem muitas. Porém nosso projeto sozinho não conseguiria gerar tal conscientização. Quando mais ONGs e mais projetos de agricultura urbana e até mesmo os agricultores familiares se articularem será possível alcançar um poder de pressão em relação a políticas públicas que favoreçam e facilitem tais projetos.

