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Answer to the Portuguese Crisis: Turning Vacant Land into Urban Agriculture

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Answer to the Portuguese Crisis: Turning Vacant Land into Urban Agriculture

The increase in demand for spaces for agricultural production during times of crisis is well recognised (Cities, Poverty and Food, 2010) and this phenomenon can be verified in Portugal. This paper focuses on the access to urban land for agriculture and the need to revisit Land Use Planning to become a facilitating tool for long-term consolidation of UPA.

This paper is an original essay drawing lessons from two paradigmatic Urban and Peri – Urban Agriculture [UPA] Portuguese experiences. They are relevant examples of UPA as a response to the economic crisis, by their expansion through time (more than 10 years), their size (more than five hectares) and number of urban farmers involved (more than 200 people). They provide insights on how urban planning should deal with an emerging phenomenon. In addition, this paper raises critical issues on the agricultural rural law and the Portuguese Constitution (2005) that opens up innovative possibilities for a Portuguese normative framework to facilitate access to urban and peri-urban agricultural land in cities.

Last but not least, this paper proposes three types of land zoning, based on users profiles, family income, land property (public or private), potential outcomes from social inclusion to income generation and job creation. The introduction of urban agriculture zoning into existing land use planning and normative framework appears as a key instrument for turning vacant urban spaces in cities into sustainable productive and /or inclusionary areas.

The three pronged approach designed for this research: [1] desk review of international literature, [2] critical analysis of existing laws and relevant constitutional articles and [3] in-depth analysis of two paradigmatic examples leads to the conclusion that the existing economic crisis and its social and economic devastating effects is at the same time an opportunity to rethink and renew the Land Use Planning and Policies in Portuguese cities. The process should be open to all relevant public, private and community actors and conducted by representatives from each sector. Agricultural Zones of Social Inclusion, as suggested in the paper might be a powerful way to help out this much needed debate.

Keywords

Urban and Peri-urban agriculture; Land use planning; Land access; Zoning typologies; Social Inclusion

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1. EMPTY URBAN SPACES AS A CATALYST FOR RETHINKING LAND USE PLANNING

The current Land Use Policy (LUP) in Portugal is based upon the maximization of urban land for construction made clear in the primary regulatory tool for municipalities, the Municipal Master Plan (PDM). In the face of population decline in Portugal, the PDMs contain unnecessary areas for growth. According to Oliveira (2011) the lack of planning and control on behalf of the municipal authorities is the reason for the inflated forecast of areas for growth and development, which are translated in the dispersion of urban territorial occupation and result in an irrational expansion of the necessary infrastructure. The direct consequence is an excess of empty urban space that breaks the urban continuum.

This issue was highlighted as one of the “24 Problems of Territorial Planning in Portugal,” included in the *National Programme for Spatial Planning Policy Report*¹ (PNPOT, 2007), which emphasizes the “uncontrolled expansion of urban and metropolitan areas, invading and fragmenting the open spaces, affecting their quality and ecological, landscape and productive potential, and increasing the cost and difficulty of developing infrastructure and the provision of collective services” (p 22). At the same time, the situation has been exacerbated by the economic crisis as expressed by Cabral (2015): “The debate regarding planning in Portugal has been influenced by the financial crisis of 2008 and by the changes in government in 2011, along with the new program of financial assistance requested by the International Monetary Fund (IMF) and European authorities. The program reduced public access to financial resources, imposed restrictions on State intervention, and promoted market liberalization. The economic restrictions had an impact on planning, resulting in reduced resources for local authorities.”

The impact on the construction sector was severe. According to Gil (2014) the number of annual building licenses at the beginning of the crisis in 2008 was 20,000; in 2014 it had decreased to 8,000. Data from the Portuguese Central Bank indicates that construction turnover decreased by 17 percent in 2011 and by 26 percent in 2012, mainly due to the collapse of the building sector (Banco de Portugal, 2014). The crisis gave rise to dramatic unemployment rates that jumped from 7.6 percent in 2008 to 16.2 percent in 2013 (Pordata, 2015c). The real estate bubble and the financial crisis left a trail of vacant plots all over Portugal, notably in the two Portuguese Metropolitan Areas, Porto and Lisbon. The social, environmental and economic costs of such vacant land is largely unknown and generally underestimated. According to Alexander (2015), “each and every tract of vacant and abandoned property imposes costs on the adjoining properties, on the fabric of the neighborhood, and on the vitality of the community.”

The total amount of land not being used is unknown, although it is forecast that this value ranges between one and two million hectares including rural and urban land (Lusa, 2011). In 2012 this problem gave rise to the first land bank government initiative concerning rural land. In 2015 the Ministry of Agriculture and Marine sent to the National Assembly a draft law proposing

¹ The PNPOT was approved by the Law n. ° 58/2007, of 4th September, and rectified by the Declaration n.º. 80-A / 2007 of 7th, September, and n. ° 103-A / 2007 of 23rd November. It is composed by one report and one action plan. The 24 Problems of Territorial Planning in Portugal are part of the PNPOT report approved by the Law n. ° 58/2007, of 4th September. See chapter “Organizations, trends and performance of the territory, sub-chapter “Portugal: the major problems for regional planning” (page 22).

the transfer of land with unknown owner(s) to the eminent domain. Those groundbreaking initiatives were the starting point to a process of land appropriation for social purposes that fits Portuguese needs. However, this process limited so far to rural land should be extended to urban and peri-urban land in order to address the issue raised previously of voids in these areas, which largely resulted from the recent economic and financial crisis.

In addition to financial crises, a dramatic decrease in population can also lead to land abandonment. Some predict that the Portuguese population in 2060 will be 15 percent less than today; that is, it should fall from the current 10.4 million (Pordata, 2015a) to 8.9 million in 2060 (INE, 2009). Another impacting factor is the aging of the population. Portugal is already above the European median score of populations older than 65 years, with 133.5 elders for every 100 youths, and the forecast to 2060 is 307 elders for each 100 youths (Pordata, 2015b). Thus, the prevalence of abandoned land should be a steady trend over the decades to come.

On the other hand, all over the country, particularly in metropolitan areas, local authorities are beginning to promote Urban and Peri-Urban Agriculture (UPA) as there is an unsatisfied demand for spaces for its practice due to the crisis (Martins, 2012). Some innovative initiatives swiftly expanded and became national references such as Lipor that started in 2003 and at the moment cultivates 53,000 m²; Funchal Municipality that started operating its program in 2005 and cultivates now 59,000 m²; and Seixal Municipality, which has been mapping and developing land for urban agriculture since 2001. Due to the huge amount of new projects popping up over the last years, a Portuguese Network of Urban and Peri-Urban Agriculture (PORTAU²) was created in 2011, with a clear intention to link up grassroots organizations, institutions, universities, municipalities and farmers involved in this growing phenomenon. According to Rodrigues (2012) in 2012 more than 80 institutional projects were identified. At the same time, appropriated land for farming in Portugal is lacking, as recently underlined by the head of the Portuguese Farmers Association (Ferreira, 2015).

Under such contradictions and circumstances, there is a clear and urgent need to review land use planning policies in order to explore the productive potential of urban vacant space and offer potential solutions to the demand for land for growing food.

1.1. Crisis as an opportunity for the productive use of urban space

The increase in demand for spaces for agricultural production during times of crisis is well recognized (Dubbeling et al., 2010). This phenomenon is demonstrated in Portugal, with an increasing number of municipalities formalizing urban gardens cultivated by low-income families. As UPA does not imply an irreversible land use change, our view is that it offers a prospect of transformation of urban land, in the short or medium term.

Considering the multidisciplinary nature of the topic, our contribution to UPA is centered on the access to urban land for agriculture, introducing the discipline of Land Use Planning as a facilitator. The methodology used consists in setting out the different concepts involved and their areas of intersection, as a starting point for identifying opportunities and barriers to developing a policy of UPA and LUP in Portugal. Our examination is based upon the triangulation of three

² <http://www.portau.org>

areas: (1) Desk Review – a brief review of the current situation in relation to UPA from the perspective of LUP, with the purpose of identifying similarities that may be applicable within the Portuguese context; (2) Land Use Planning and Urban Planning Law – framing the existing land use planning tools (e.g. PDM) with the purpose of identifying opportunities and barriers to the inclusion of UPA and analyzing the institutional frameworks and regulatory policies (e.g. CRP³) to identify opportunities and obstacles to the regulation and institutionalization of UPA; (3) Social Sciences, and more specifically Urban Sociology – through an empirical assessment⁴ of two case studies that exemplify the upscale of UPA in Portugal in response to the crisis. We chose these cases based on their longevity (more than 10 years), size (more than five hectares) and number of urban farmers involved (more than 200 people), as well as their combination of the top-down approach of the State, e.g. *Quinta da Princesa* (Seixal), with the bottom-up approach of civil society, e.g. the *Horta à Porta* allotments, illustrated in point 5 of this article.

It is our view that these experiences provide a starting point for explaining how future urban planning should deal with an emerging phenomenon of land access that began with and is growing as a result of the crisis. In other words, we are trying to shift from identifying opportunities to facilitating transformations of vacant urban land. Our hypothesis is that the crisis has generated urban and peri-urban agricultural initiatives that provide opportunities to enrich the tools used in land use planning. Once confirmed, we intend to (1) turn the phenomenon associated with the resurgence of agriculture in urban spaces into an opportunity to rethink land use planning; (2) assess, based upon the different strategies employed in the case studies and the Portuguese legislative framework, which positive policies could be employed in the access to urban land for the practice of agriculture, using land use planning as a mediation tool.

2. A CRITICAL ANALYSIS OF LAND USE PLANNING TOOLS

In Portugal, “the ‘urbanism’ approach, which occupies architects, planners and consultants in municipalities, is mainly concerned with urban design, townscape and building control” (Cabral, 2015, p 63). The national planning system operates at both national and local levels with municipalities responsible to deliver and implement land use plans equivalent to Master Plans, called PDMs. These are regulatory zoning instruments applicable to the entire jurisdiction. The PDM process includes a diagnostic phase, with different degrees of actor’s participation: civil society, local associations, academia, and others. Technical oversight is given by a team of urban planners, almost always under the direction of political leaders. In general, the social and economic concern of a PDM largely depends of politicians and planners’ awareness and willingness, and to a much lesser extent to citizens’ expectations and desires.

Broadly speaking the land included within the consolidated perimeter of any city or town is classified as urban, and this implies that it is open for construction. However, being labeled as urban land doesn’t impede the land to being used as agricultural land. The impediment arises because the owner does not want to free land for farming, considering the “at least theoretical option” of development certainly (based on past revenues) more profitable.

³ Constitution of the Republic of Portugal (2005).

⁴ Supported on field visits, interviews and archival research.

Beyond the PDMs, the municipalities have other tools for land management at macro and micro levels, e.g. urban development zoning plans (*Planos de Urbanização*) and urban detail plans (*Planos de Pormenor*) which enable a more detailed framing of urban land use, and can be reviewed as needed. For groups of municipalities, Regional Development Plans can be established. At national level, there is the National Programme for Spatial Planning Policy (PNPOT) that has been previously mentioned. Given the binding and operational character of the PDM, a local development strategy that considers the creation of productive agricultural spaces should take into account this land use classification in the regulations of its PDM⁵, whether as an end in itself or as a temporary use of urban land. From another perspective, the informality of agricultural practices – which are happening, as we will later see – is possible, but its protection in terms of land use rights is made difficult by the absence of a legal framework in land use planning and/or land policies⁶.

3. URBAN AND PERI-URBAN AGRICULTURE AS A RELATIVELY NEW PROCESS IN PORTUGAL

According to Mougeot (2000, p 10): “Urban agriculture is 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” As the FAO⁷ states, the growth in UPA is due to its adaptability and mobility compared with rural agriculture. The reasons for the practice of UPA are manifold. In this article we concentrate our analysis from the perspective of social inclusion and its relevance in the context of crisis, notwithstanding the importance of other dimensions.

Comparing 1989 with 2009 data indicates that the number of existing farms in Portugal has been decreasing. In three decades they decreased by half (Alberto and Almeida, 2011). Beyond the crisis and demographic factors previously described, another element that might explain the huge and growing demand for agricultural land in cities may be the relative youth of the Portuguese urbanization process, quite unique by European standards. In 1975, as little as 27.7% of the population lived in urban areas (INE, 2011). During the past decades rural areas lost their population and in 2008, 59.3% of the population was living in cities. The crisis did not alter this trend: the urban population continues to grow and currently represents 61.6% of the total population.

A continuous practice of small-scale subsistence agriculture remains in place in Portugal, primarily in rural and peri-urban areas. However, no data are available to assess how many farmers are practicing UPA with or without formal status, as many Cape Verdean, Sao Tome, Romans, or even Portuguese migrants do. Further there is not a tradition of family allotment gardens organized in associations (Cabannes and Raposo, 2013) as some European countries

⁵ It is important to highlight that the Lisbon PDM has recently introduced a classification of productive green zones. The challenge that remains is its implementation – a theme that can stimulate further discussion.

⁶ Understood as a combination of actions and voluntary interventions of the Public Administration in the land market with the aim of guaranteeing the availability, at the appropriate time, of the necessary land for the intended purposes and at reasonable prices (*Correia F, 2012, Manual do Direito do Urbanismo. Almedina*).

⁷ FAO – Food and Agriculture Organisation of the United Nations.

have, making it nearly impossible to measure how many farmers are involved in small scale farming. In addition, statistical data from INE (2014) shows that the typical Portuguese farmer is male, 63 years of age with limited formal education. This set of circumstances may explain the low social perception of agriculture in Portugal as a concept, and the difficulties in formalizing this practice on urban land⁸.

4. URBAN AND PERI-URBAN AGRICULTURE VS. LAND USE PLANNING AS AN INTERSECTION OF DISCIPLINES

Analysis of existing literature reveals a growing debate on access to land in urban areas. However, due to disciplinary borders primarily between town planning, architecture, geography, and social sciences these debates hardly become trans-disciplinary, as they should. Since the beginning of 21st century, various publications and reports are recurrently raising this issue, such as RUAF Thematic paper “The Integration of Agriculture in Urban Policies” (2000) that offers suggestions on means and ways to integrate urban agriculture into urban land use policy. Some of them are consistent with our proposal, for instance, 1) removal of unsubstantiated legal restrictions to land access; 2) persuading urban planners to accept urban agricultures as a legitimate form of urban land use; 3) integration of agriculture in urban development planning; 4) revision of actual urban zoning bylaws and the integration of urban agriculture in zoning plans; 5) promotion of urban agriculture as a non-permanent use of vacant public and private land; 6) enhancement of community participation in the management of urban open spaces. Far from being a new debate topic, this is clearly an ongoing discussion still not fully fluid among experts involved.

“Cities Farming for the Future” (RUAF, 2006) covers the various dimensions of urban and peri-urban agriculture, including the LUP dimension whose chapter is authored by Mubvami and Mushamba (2006). The authors state: “Urban planners have an active role to play in integrating urban agriculture into urban planning, especially in encouraging it as an urban land use, and in catalysing change in the public perception. (...) it is possible to integrate UA into urban planning and come up with regulations that reinforce this. (...) The successful and sustainable integration of urban agriculture into urban land use systems is a complex task requiring a multi-stakeholder approach. The urban planner can and should take a leading role here by creating a conducive operational environment” (Mubvami and Mushamba, 2006, p 85). More recently the report “Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security” (FAO, 2012) considers agriculture, particularly rural or peri-urban, from a land use planning perspective.

Among innovative cities’ initiatives, Rosario in Argentina is worth mentioning and one of the first to gain world wide recognition when it was awarded the Best Practices to Improve the Living Environment (UN-Habitat / Dubai, 2004) for its Urban Agriculture Programme (PAU)⁹. The program was implemented in response to a crisis socio-economic situation similar to the circumstances experienced in Portugal today. In conjunction with civil society and the Network

⁸ For example, an urban garden was approved in the Participatory Budget of Cascais in Lisbon, but the project was not implemented due to public opposition by neighborhood residents. Among the reasons given were the bad smells and the handling of dangerous tools.

⁹ <http://www.agriurbanariosario.com.ar/espacios-de-agricultura-urbana.php>, accessed on 30th July 2014.

of Urban Farmers of Rosario, approximately 20 hectares of public and private idle land were transformed into cultivating plots¹⁰.

Three laws, two of which have direct implications for the access to land, legally bind this program. Law 1.4713/ 89¹¹, established before the official start of the PAU, states that public and private land can be used for the practice of urban agriculture (Cabannes, 2012). Simultaneously, it incentivizes landowners to allow the use of their land for a minimum period of two years in exchange for tax reductions. Law 2561/04 establishes the PAU as manager of the land bank, which comprises donated land (2 years minimum) by private individuals, business owners, foundations and others. Once a private owner transfers the right of use to the municipality, that in turn will authorize a lease to urban farmers, the land owner will benefit from a land tax waiver. We emphasize the importance of the institutionalization of the PAU for the creation of the land bank and implementation of tax incentives, thus enabling a policy for urban and peri-urban agriculture that is in line with land use planning policy.

What is relatively new in this approach is the linkage between land banks and productive land. In fact, land bank initiatives have been implemented for almost half a century, for instance in St. Louis, Cleveland, Louisville, and Atlanta (Alexander, 2015). “Following the formation and implementation of the St. Louis Land Bank between 1971 and 1973, state enabling legislation was approved in Ohio in 1976 that permitted the creation of the Cleveland Land Bank. A little more than a decade later, both Louisville (1989) and Atlanta (1991) created parallel land bank authorities with the approval of intergovernmental agreements. In each succeeding instance, the local governments examined the programs, priorities, structures, and policies of the preceding land bank authorities and then proceeded to adopt and to adapt a land banking program designed to fit the particular needs of each community” (Alexander, 2015, p 18).

Schilling and Logan advocate a “holistic approach for addressing the challenges arising from sustained population loss and the increasing presence of vacant and abandoned properties in America’s older industrial communities” (2008, p 451). The innovative model they present links four strands: shrinking cities; green infrastructure; land banking; and collaborative neighborhood planning (Schilling and Logan, 2008). Such solutions are powerful sources of inspiration for Portugal today. Yet there are many challenges to creating productive green spaces. Sousa (2003) identified real and perceived barriers to green reclamation of brownfields as: lack of money, marginal evidence of economic return on investment, lack of government leadership and coordination, and lack of similar greening models. Those barriers should be part of the debate on land use planning policies.

5. WHAT IS CURRENTLY BEING DONE TO ACCESS URBAN FARMING LAND IN PORTUGAL

A review of the literature on Portuguese urban gardens primarily found recent PhD and master theses, focusing mainly on case studies; Saraiva (2011) on Oeiras (outskirts of Lisbon); Ramos (2011) on Chelas (Lisbon); Santos (2011) on Horta do Monte (Lisbon) and Quinta das Musas

¹⁰ For further details see *La Agricultura Urbana en Rosario: Balance y Perspectivas* (Mazzuca, A. et al, 2009).

¹¹ For further information on this legislation, see: CABANNES, Y. 2012. *Pro-poor legal and institutional frameworks for urban and peri-urban agriculture*, FAO - Food and Agriculture Organization of the United Nations.

(Porto); Cardoso (2012) on Vale de Carnide (Lisbon); Abreu (2012) on Cascais (Lisbon outskirts); Martins (2012) on Lisbon Metropolitan Area; Rodrigues (2013) on Seixal (Lisbon outskirts); Cancela (2014) on AVAAL (Lisbon); Sousa (2014) on 2 different Lisbon gardens, AVAAL and Horta do Monte. A few papers have been published, including Luiz & Jorge (2011) on Cape Verdean population in the outskirts of Lisbon, and Cabannes & Raposo (2013) which focuses on regulated and unregulated experiences in Lisbon.

Despite being a new phenomenon, municipal initiatives are growing quite rapidly (Cabral, 2014). Each one of the 18 municipalities of Lisbon Metropolitan Area had regulated initiatives since 2011. At the same time, the dimension of unregulated gardens is undetermined. According to Cabannes and Raposo (2013) at least 77 hectares are being cultivated in and around Lisbon, by Portuguese nationals and migrants. Yet community gardens initiatives are still scarce, which may be explained by the limited access to land. The municipalities are responsible for decisions on public land uses. A groundbreaking law, the “Decreto Regulamentar” n° 11/2009, 29 of May, and recognized agriculture as a compatible activity within the green areas defined in master. However, this law has been hard to implement, as it requires an extremely slow and demanding process of revising Municipal Master Plans. At this time, the city of Lisbon is the only city to complete this process, with the creation of the “Urban Allotments Parks Program (2011-2017)”. This program intends to implement at least 20 urban allotment parks by 2017 (Cabral, 2014), under municipal supervision and mainly for self-consumption. The Urban Allotments Parks Program is now integrated in the Lisbon Master Plan, in a section called the “Green Plan” that includes all the urban allotments, public green areas, and municipal water cycle improvements.

While not covering all the APU dimensions like, for instance community grassroots gardens, the Lisbon proposal is innovative and meritorious. Our paper intention is to open the debate to additional new models of land access, including foremost vacant private land access. We acknowledge that access to private urban land is much complex and, on the other hand, private ownership regimes much more representative of urban and peri-urban land ownership.

5.1. Two paradigmatic processes on land access

To illustrate the current situation in Portugal we will describe two distinct processes. The first case study is the *Horta à Porta* initiative located in the Metropolitan Area of Porto, managed by a solid waste management company since 2003. This allotments program encompasses 1075 plots of land, covering a total area of 5.81 hectares. The land is, for the most part, public. The second case study describes the legitimation of an agricultural occupation involving a group of Cape Verdean migrants, coordinated by a municipal government in the Greater Metropolitan Area of Lisbon. The seven-hectare piece of land is privately owned.

5. 2 Lipor – *Horta à Porta* allotments

Lipor¹² is a company established as a result of collaboration among eight municipalities from the Metropolitan Area of Porto¹³ and which has as its mission the treatment of solid waste from these

¹² See <http://www.lipor.pt/en/environmental-awareness/horta-da-formiga-home-composting-centre/horta-a-porta-project/>, accessed on 13th November 2014.

areas. In 2003, following a pilot project to provide incentives for home composting, urban gardens were created on company grounds for its employees. The success of this project triggered a program in the domains of home composting, creation of kitchen gardens, and promotion of organic farming in the Greater Porto region.

The *Horta à Porta* project currently comprises 26 different partners, including private companies, local faith-based associations and charities, housing cooperatives, parish councils, local authorities and schools. A large part of the farmed land is public. When the land is privately owned, a free lease agreement (*comodato*)¹⁴ is put into place between the landowner and the institutional partner. In total, Lipor manages 40 communal gardens that comprise nearly 1100 plots of land (+/- 25 m² each) spread over 5.81 hectares of land. In November 2014 the number of families on the waiting list was in excess of 3000.

The allotments are subdivided into four typologies: social, business, institutional, and subsistence. The criteria for the selection of users include the proximity between the home and the location of the garden, and in the case of subsistence gardens (which allow for the commercialization of the agricultural products), eligible candidates must be unemployed, have a large family (5 people) and a gross annual household income of less than €20,000. Disadvantaged groups and social intervention institutions work in the social responsibility allotments, where the families and institutions use the produce for personal consumption. This group includes gardens associated with Social Housing Neighbourhoods (as can be observed in Pictures 1 and 2), a Therapeutic Community, the Porto Night Shelters Association for homeless persons, and a women-led Catholic Association. The business gardens allow companies or institutions to restructure green spaces, making them productive and reducing maintenance costs. Included in this group are the Nobrinde MBA – Marketing e Brindes Garden, the first to be established; the Tecmaia Garden in the Maia Science and Technology Park, with 22 plots of land; and the CICCOPN Garden of the Vocational Training Centre for the Building and Public Works Industry of the North, with 20 plots of land. In addition, there is the Institutional Garden of the Maia Primary School with an additional 10 plots of land. Finally, the first subsistence garden was created in 2009 with 41 plots of land (100 m² each). In this case, the sale of surplus produce is permitted, to complement household income.

Lipor is responsible for providing the initial training in organic farming and composting, managing the database, dissemination, registration, monthly monitoring of the gardens, and issuing weather warnings. The manager of allotments, who is a Lipor representative, carries out this work. Whilst there is a set of general regulations, each garden can define its own rules. It is mandatory for all users to attend training in organic farming (min. 12 hours) and recycling (1.5 hours); to use and look after the individual or collective composting bins (depending on the garden); to use only organic farming methods; to promote crop diversity; and to ensure that the crops that are grown are exclusively for personal consumption, with the exception of the subsistence garden where commercialization in the local market is permitted.

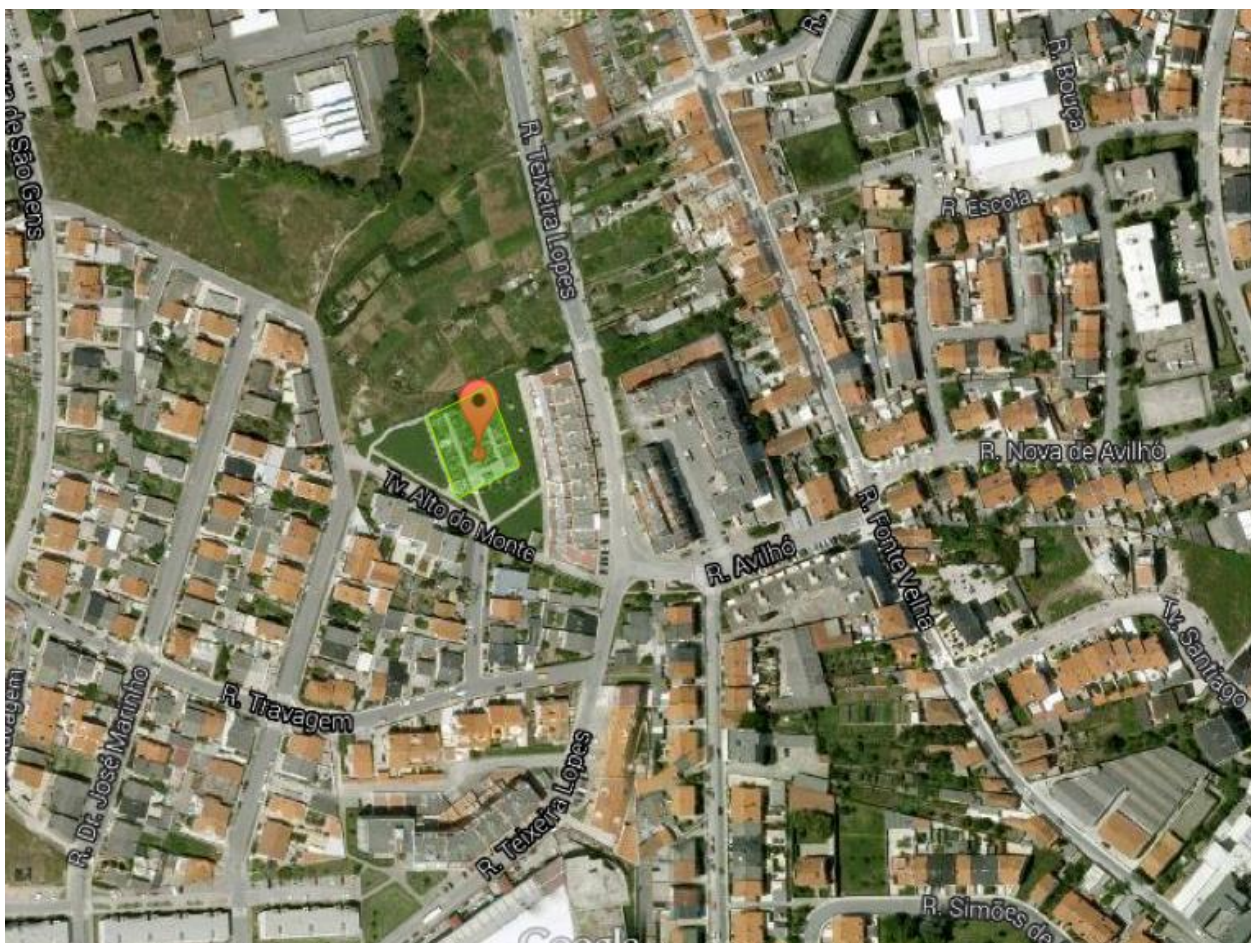
¹³ The Metropolitan Area of Porto has a total area of 21,278 km² (24 percent of Portuguese territory) and a population of 3.689 million inhabitants (INE, 2011).

¹⁴ The free lease agreement represents a specific type of rental agreement for agricultural land.

The use of the plots of land is permitted for one-year periods that can be renewed. In practice, from the time when the farmer receives the plot of land and farms it according to the rules, it can remain in his possession for an unlimited amount of time. Faced with an extensive waiting list, Lipor and its partners must find other innovative ways of accessing land.



Picture 1: Example of an Allotment located within an urban park, close to Social Housing Neighbourhoods. Matosinhos - Metropolitan Area of Porto. © Lipor, 2014



Picture 2: Close up of Allotment Garden, Matosinhos, - Metropolitan Area of Porto. Location map. Picture without scale, © Author, 2014

5.3. *Quinta da Princesa* - Seixal Urban Garden Network

In 2001 the Municipality of Seixal, located in the Lisbon Metropolitan Area¹⁵, initiated an Urban Garden Network project¹⁶ seeking to stimulate the practice of organic agriculture and contribute toward rethinking land use planning within the municipality. The project included a stage of socio-demographic diagnosis and mapping of existing urban gardens on public and private land (2001-2002) and concluded that there were 120 hectares with the potential to be transformed into productive agricultural land¹⁷. An update was carried out in 2008-2011 and 23 gardens in a situation of informal occupation were listed, representing a 20 percent increase in relation to 2002.

A questionnaire administered to a significant sample¹⁸ of urban farmers (2011) confirms that 50 percent of urban farmers are between the ages of 46 and 65, come from the southernmost part of the country (37 percent) or form part of the migrant population from Portuguese speaking countries, such as Cape Verde, São Tomé, and Angola (30 percent)¹⁹. The majority of urban farmers are male (73 percent), with 65 percent having had just four years of schooling and 11 percent having had no formal education. In general, the key reasons cited for the farming of urban gardens include occupying spare time (72 percent are retired), complementing household income and following traditions linked to the practice. According to the sample, urban farmers would be interested in having a formal space (87 percent) under the guardianship of the local authority. Of these, 26 percent would be willing to pay between 15 and 40 Euros per year and 40 would be willing to pay between 40 and 60 Euros per year.

The diagnosis pointed to *Quinta da Princesa* as a priority area based on the characteristics of the group and high-risk practices associated with the informal use of wastewater for irrigation. The urban garden is used by 120 families from Cape Verde, Angola and São Tomé, including both men and women. Nearly 90 percent of urban farmers have a maximum of four years of schooling. The economic situation of the population is fragile as a result of unemployment, vulnerability, and low wages. The cultivation of the land ensures that the basic daily dietary needs of the families are met. The garden occupies a piece of private land which, under the land use planning tools currently in force, is classified as urban and can be developed. This condition complicates the legalization process of the garden.

The Municipality intervened in a few ways. First, attending to the socio-economic concerns, the Municipality initiated a mediation process between the community and the owner of the land. Simultaneously, awareness-raising actions were developed with the community (2012), namely around the issue of using wastewater for irrigation, a common practice within the

¹⁵ The Lisbon Metropolitan Area comprises 18 municipalities. It is the most populous area in the country, with 2.821 million inhabitants (INE, 2011).

¹⁶ See http://www.cm-seixal.pt/CMSEIXAL/AMBIENTE/AGRICULTURA_URBANA/, accessed on 20th November 2014.

¹⁷ Information provided in a meeting with a representative of the Environment Department of the Seixal Municipality – October 2014.

¹⁸ 58 farmers participated in the survey and they represent more than 50% of the total.

¹⁹ This socio-demographic dimension coincides with the conclusions reached by Cabannes and Raposo (2013).

community. The Municipality made available 200 containers for rainwater collection. The initiative was well received within the community but failed in the medium term for cultural reasons. Another initiative of the Municipality consisted in supporting the formalization of the group of farmers into the Cooperative of Urban Farmers of *Quinta da Princesa*, C.R.L, (July 2014). This statute enables the acceleration of the process of dialogue between the parties, namely with the Municipality and the landowner, and access to financing which can legally only be offered in institutional contexts.

The Municipality is currently leading a discussion process among the various groups: landowners and cooperatives. The intention is to advance with a subdivision of urban land according to the Legal Framework of Urbanisation and Construction (*Regime Jurídico da Urbanização e Edificação*), despite the landowner not having the intention of building immediately. This bold and innovative procedure allows legitimating agricultural occupation by the urban farmers in the 3-hectare transfer area in subdivision plans, which represents a reduction of over 50 percent in the area of land that is currently being farmed. In a discussion with the author the president of the Cooperative admitted that it would be preferable for the community to reduce the total amount of land for farming in exchange for the legalization of the urban garden. To what extent does this reduction imply a reduction in the rights of citizens to food sovereignty? This remains an open question.

Through participatory processes the Municipality will develop the design of the future Agricultural Park of *Quinta da Princesa* with the community of urban farmers and the landowner. The procedure is outlined in the Technical Guidance Manual for Outdoor Spaces (2013): “In the event that in the location of intervention there are already urban gardens in place, the stage of allocation of plots should go through a participatory process among the community and local urban farmers” (section VI, Art. 29). This is an innovative tool that legitimates existing or foreseen urban gardens in the municipality. With the Seixal Urban Gardens Network, the Municipality intends to transfer this process to the remaining informal gardens in the area and include new urban gardens where possible in public spaces belonging to the Municipality. In a second stage the network of urban gardens will be incorporated in the Municipal Master Plan. It will be a first step towards extending the debate on the access to land for agricultural purposes, including on private land.



Picture 3: Corn being cultivated by Cape Verdean urban farmers close to housing neighbourhoods. Seixal - Metropolitan Area of Lisbon. © Photo by Author, 2014

Picture 4: Community leader from Cooperative of Urban Farmers of *Quinta da Princesa*. Seixal. © Photo by Author, 2014



Picture 5: *Quinta da Princesa* Allotment. Seixal - Metropolitan Area of Lisbon. Location map (7 hectares). Very large allotment close to a massive low-income housing development (on the right side). Picture without scale, © Seixal Municipality, 2014

6. SOME PROPOSALS WITHIN THE PORTUGUESE LEGISLATIVE FRAMEWORK FOR AGRICULTURAL LAND ACCESS

The two examples demonstrate a shift in scale of UPA in Portugal, from a practice that was essentially family-based and individual to a collective dimension, on both private and public land. These experiences are supported by institutional powers from a perspective of social inclusion, as evidenced by the personal consumption for low-income families and the absence of payments for use of the land by the families. The majority of the occupied agricultural areas are peri-urban, which can be attributed not only to the space needed for agricultural farming, but also the lack of a Land Use Planning policy for agriculture on urban land. Although these two cases are illustrative of the spatial practices in the two Portuguese metropolitan areas, which house more than 50 percent of the Portuguese population, it would be necessary to explore and clarify their presence in smaller towns and cities to better characterize this emerging phenomenon. The two cases also indicate that: (1) there is a demand for urban land for agricultural farming; (2) the scale of the demand has changed in recent years; (3) the food that is produced is an emergency resource for the consumption of families impoverished by the crisis; (4) there is an awareness on the part of some institutions of the urgency of the process, as evidenced in the support granted to the urban farmers; and (5) there are not any LUP policies in place that can accelerate and support these institutions in obtaining productive land.

Although there is increased interest and awareness of urban agriculture as a tool to face the economic crisis, the political commitment is weak, and there is no financial allocation for this purpose (Nunes, 2011). In other words, this enormous potential needs to be consolidated through appropriate public and land use policies.

6.1. Constitution of the Republic of Portugal as a facilitative framework

According to the Constitution of the Republic of Portugal (CRP), it falls to the State as part of its economic and social responsibilities (Article 81, Section a) to “promote an increase in social and economic well-being and quality of life of the people, and in particular the most disadvantaged groups, in the framework of a sustainable development strategy.” On the other hand it is the responsibility of the State to safeguard abandoned means of production (Article 88, n.º2) that can be used for rental or compulsory leasing purposes, under conditions to be determined by the law. Article 93, which defines the objectives of agricultural policies argues that:

- it is necessary to promote the improvement of the economic, social and cultural situation of rural workers and farmers (Section b);
- it is necessary to promote access to property or possession of land and other means of production directly used by those working the land (Section b); and
- the rational use and management of land and other natural resources must be ensured, as well as their maintenance and capacity for regeneration (Section d)

Finally, in Article 92, point 2 it is asserted that the State should promote a policy of land use planning, agrarian restructuring, and forestry development taking into account the ecological and social conditions in the country.

We observe that the CRP opens essential spaces to facilitate the introduction of new LUP instruments in territorial planning and to overcome the contradictions between land as social

functions, where urban agriculture is included, and land private ownership sphere of influence. There is no doubt that CRP is a tool that municipalities can use to achieve this aim, the point is: are they keen to fight against instated powers.

6.2. Existing opportunities within the rural legal framework

We identify land banks and tax treatments as two existing opportunities to support and promote UPA within the rural legal framework. In 2012 the Portuguese government created a land bank through Law n° 62/2012, representing an example of a governmental strategy with laudable principles. As it only considers land classified as rural, it does not include the possibility of (temporary) transformation of urban land into productive space. Although the land bank only includes rural land the demand far outweighs the supply²⁰. There is an opportunity to extend the remit of the land bank, making available urban land for agricultural production. There are also tax treatments that are favourable to the productive use of rural land for agricultural purposes. For example, the Resolution of the Council of Ministers n.º 56/2012 establishes the Guidelines and Strategies for Land Registry and Management which can, in our view, be adapted to urban land. The intention would be to promote the georeferenced identification of lands, to ensure that the land bank promotes the management of empty, abandoned lands and to create favorable tax treatment for the productive use of land. The Municipal Property Tax Code would be amended in such a way as to support those who manage the land or make it available and to make accountable those who abandon it, revoking any relevant tax, technical or general exemptions. Once again, we observe a legal framework, which, with the necessary adaptations, could be a powerful land use instrument to stimulate UPA and support the initiatives that are currently in expansion in the country.

7. LAND USE PLANNING TOOLS SUPPORTING THE GROWTH OF URBAN AND PERI-URBAN AGRICULTURE

Based on the empirical observation of two case studies, and considering the potentialities of the existing legal framework, e.g. CRP, rural legal framework, we propose to illustrate some of the LUP stages from a UPA perspective.

7.1. Mapping urban land

The lack of clear data on the nature and magnitude of vacant, abandoned, and tax delinquent properties makes the mapping process extremely complex (Alexander, 2015), and prevents approaches to farm vacant land. In addition the issue is relatively new and unexplored as according to Mubvami and Mushamba (2006) references to food system is notable lacking from planning scholars' writings, as well as from planners works.

Our proposal aims to fill that gap. We advocate starting with a diagnostic process and mapping of the land with potential for agricultural use through participatory methods. According to Cabannes (2003) the process includes: (1) examining the current situation, with a local support committee; (2) building a diagnosis through the implementation of a public consultation process; and (3) building a regulatory framework that introduces urban agriculture in urban planning and

²⁰ See the interview available at <http://www.bolsanacionaldeterras.pt>, accessed on 30th July 2014.

regulates its use. The land inventory process for public and private land is essential, and should encompass serviceable land with potential for temporary occupation. Institutional spaces such as schools, hospitals, areas next to roads, railway protection zones and power line protection zones are potential spaces for agricultural production that are rarely made use of and which rely on LUP to be defined as available for agricultural use. Lands unsuitable for agricultural use, whether due to topographic issues, the quality of the soil or access to water, should also be included. It is possible to subsequently define strategies that make possible their use for agricultural purposes. A clear definition of the objectives of the mapping should analyze the expectations of the municipality in terms of a local development strategy, including: food self-sufficiency levels, number of job creation units, intended social inclusion outcomes, etc., which will enable the development of zoning maps that distribute and define land potential in accordance with the Local Development Strategy.

7.2. Land use zoning adapted to the Portuguese context

Taking in consideration the two emerging experiences from Porto and Lisbon Metropolitan Areas and the analysis of the existing literature on current legal tools and policies practices, we suggest three typologies of zoning for urban agricultures (Table 1). The zoning is based on users profiles, family income, land property (public or private), potential outcomes from social inclusion to income generation and job creation. These typologies could be adopted in the Master Plans, uncommitted from the mainstreaming zoning of urban, rural or others zoning labels, and public or private land ownership due to its temporary application. Nevertheless, this proposal should be open to discussion and presupposes adaptation to the local context, namely considering the local development strategy of the Municipality.

Table 1: Proposed Typology for Agricultural Zones of Social Inclusion

Name	Agricultural Zone for Social Emergency	Agricultural Zone for Income Generation	Agricultural Zone for Job Creation
Acronyms (in Portuguese)	ZAEA	ZAAR	ZACE
Users /profile	High economic need	High economic need	Not for profit organizations
Productive purpose	Personal consumption	Sale	Sale
Marketing	Prohibited	Permitted	Permitted
Land	Public or private	Public	Private
Objective	Emergency food aid	Income generation	Permanent job creation

We sustain that, in the cases of food emergency, the State should apply to the Constitution of the Republic of Portugal to legitimize the use of private land for families with high economic need; see typology of Agricultural Zone for Social Emergency. The compulsory leasing of private land can only be legalized by Article 88, n° 2 of the CRP in the case of need for emergency personal consumption, and sale is therefore not permitted. On the other hand it may be possible to request the same legal designation for Agricultural Zone for Job Creation by not-for-profit companies if it is established as a framework to permanent job creation. Finally, we argue that public land can be used to support household income, see Agricultural Zone for Income Generation, enabling the sale of crops, which can be legalized through Article 93 of the

CRP. Using CRP can push private landowners to consent on the use of land for social reasons given the crisis frame. Under this framework, it will be possible to embrace urban land as productive land, at least for defined period of time.

8. URBAN AND PERI-URBAN AGRICULTURE VS. LAND USE PLANNING: CONSTRAINTS AND OPPORTUNITIES

There are significant constraints to the operationalization of UPA as a tool for LUP. Firstly there is a lack of recognition of UPA as a legitimate function within the urban perimeter (Wooten and Ackerman, 2012). Secondly, the notion of challenging preconceived ideas: urban agriculture is a case of reclaiming the right to food sovereignty. The process of raising awareness is a lengthy one and would involve training for all parties involved, namely through statistical analysis of the positive impacts of Urban Agriculture in environmental, economic and social terms. From the technical point of view, barriers include the lack of an up-to-date land register and cartographic base that can help facilitate decision-making. The process is time-consuming and involves cooperation and access to cartographic material that does not always exist or that is out of date. Other practical constraints may emerge, such as a lack of information regarding ownership of the land, excessive leasing costs, or logistical difficulties in bringing together potential users with landowners.

In terms of opportunities, we argue that the increase in the demand for land for agricultural production should be considered a catalyst for a new policy of land use management that reduces territorial fragmentation and that makes empty urban spaces economically viable. A planning process underpinned by participatory, local diagnostic processes could function as an extraordinary tool for social cohesion, with a view to strengthening the economy through agricultural production.

9. FINAL CONSIDERATIONS: FUELING THE DEBATE IN ORDER TO OPERATIONALIZE POLICIES

The case studies that have been presented demonstrate that the crisis has generated and fueled UPA initiatives. The challenges faced regarding access to land demonstrate the timeliness of establishing a LUP policy that considers UPA. From our point of view this understanding is timely and desirable. Our conviction is underpinned by similar experiences, such as Rosario in Argentina, but also by the Portuguese legal framework, which opens a range of possibilities that should be explored from the aspect of access to urban land through the CRP, the land bank and tax treatment. This legal framework confirms that the necessary mechanisms to legalize these procedures already exist in the rural sphere. We propose the adaptation and transfer of these to urban areas.

It is argued that: (1) the transformation of derelict land into productive land generates opportunities for personal consumption, social inclusion, employment and social cohesion; (2) planning, namely the revision of the current Land Use Plans, should foresee the temporary occupation of the empty urban spaces, designating Agricultural Zones of Social Inclusion in these areas; (3) it is necessary to regulate, plan and define fiscal, social, institutional and legal incentives to ensure that these Agricultural Zones are incorporated into local development plans;

(4) the Agricultural Zones, as a response to the crisis, encompass areas such as emergency food aid (ZAEA), income generation (ZAAR) and job creation (ZACE); (5) these agricultural zones represent just one aspect (i.e. the social inclusion dimension) of what should be multiple aspects associated with Urban and Peri-urban Agriculture to be taken into account in comprehensive municipal agricultural planning. Other dimensions such as the pedagogical aspect, the recreational aspect, the therapeutic aspect, or the mitigation of environmental risk should be addressed at a later stage.

A few questions remain: Who should be responsible for moving forward with strategies for access to urban land for agricultural farming? Organized civil society through a bottom-up approach? State or Municipal Institutions through a top-down process? A comprehensive process of debate and discussion is necessary in order to rethink LUP from a perspective of inclusion of UPA in planning. This is a challenge that can stimulate the development of further research.

In conclusion, based on emerging experiences and the possibilities created by the constitutional framework and rural agricultural policies we argue that the crisis is an opportunity to rethink the future of land use planning in Portugal. It is our belief that the Agricultural Zones of Social Inclusion could be a way to assemble the discussion. Nonetheless, in the process is imperative to consider all the relevant actors and areas of interest. The role of urban planners is crucial, to the extent that it falls to them to fuel the debate within the institutional framework and to introduce new zoning concepts (see Table 1) in the development of tools for Land Use Planning. In addition it will require legislative reforms to provide local governments with critical vacant property reclamation strategies and tools, like vacant property inventory and information systems, land banks, and tax foreclosure (Schilling and Logan, 2008). Those reforms must be top priorities so cities can systematically acquire, manage, and dispose of vacant properties. Community and resident engagement is also essential as they are the ones who are most likely to experience the brunt of dangers and costs flowing from vacant and abandoned properties (Alexander, 2015). Thus, there is a need for multi-stakeholder policy formulation and action planning to integrate all the actors in the decision-making. It is only through the above-mentioned means and changes that urban vacant land in Portugal will become an accessible asset for all those wanting land to produce nutritious and healthy food for all.

References:

- ABREU, A. 2012. Hortas Urbanas - Contributo para a sustentabilidade: Caso de Estudo: "Hortas Comunitárias de Cascais". Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa.
- ALBERTO, D. & ALMEIDA, J. 2011. Evolução da Agricultura Portuguesa no Período 1989/2010. Análise de Indicadores Relevantes. *17º Congresso Internacional da APDR*. Bragança - Zamora.
- ALEXANDER, F. S. 2015. Land Banks and Land Banking. In: PROGRESS, C. F. C. (ed.). www.communityprogress.net: Center for Community Progress.
- BANCO DE PORTUGAL 2014. Análise do setor da construção. In: BALANÇOS, E. D. C. D. (ed.). Banco de Portugal - Departamento de Estatísticas.
- CABANNES, Y. 2012. *Pro-poor legal and institutional frameworks for urban and peri-urban agriculture*, FAO - Food and Agriculture Organization of the United Nations.
- CABANNES, Y. & RAPOSO, I. 2013. Peri-urban agriculture, social inclusion of migrant population and Right to the City. *City: analysis of urban trends, culture, theory, policy, action*, 17:2, 235-250.
- CABRAL, J. 2015. disP 200. *The Planning Review*, 51, 1, 62-63.
- CABRAL, M. I. 2014. URBAN GARDENING IN LEIPZIG AND LISBON Scientific Report COST ACTION TU1201
- CANCELA, J. 2014. A agricultura urbana na operacionalização da estrutura ecológica municipal. O estudo de caso do Parque Agrícola da Alta de Lisboa. Tese de Doutoramento. Faculdade de Arquitetura da Universidade de Lisboa.
- CARDOSO, S. 2012. Arquitetura e o espaço agrícola. Sustentabilidade participada: um projecto para o Vale de Carnide. *Tese de Mestrado*. Faculdade de Arquitetura da Universidade de Lisboa.
- DUBBELING, ZEEUW, H. D. & VEENHUIZEN, R. V. 2010. *Cities, Poverty and Food, Multi-Stakeholder Policy and Planning in Urban Agriculture*, Ruaf Foundation.
- FAO 2012. Directrices voluntarias sobre la gobernanza responsable de la tenencia de la tierra, la pesca y los bosques en el contexto de la seguridad alimentaria nacional. FAO - Food and Agriculture Organization of the United Nations,.
- FERREIRA, A. 2015. Falta terra para cultivar, diz o presidente da CAP. *Expresso*, 21/04/2015.
- GIL, C. 2014. Relatório Semestral do Sector da Construção em Portugal | 1º Sem. 2014. In: MINISTRO, P. (ed.). Direção Financeira, de Estudos e de Estratégia. Instituto da Construção e do Imobiliário, I.P.
- INE 2009. Projecções de População residente em Portugal 2008-2060. In: ESTATÍSTICA, I. N. D. (ed.). Lisboa.
- LUIZ, J. T. & JORGE, S. 2011. Hortas urbanas cultivadas por populações cabo-verdianas na Área Metropolitana de Lisboa: entre a produção de alimentos e as sociabilidades no espaço urbano não legal. *Miradas en Movimiento, MeM Special Volume, Naturally Immigrants*.
- LUSA. 2011. Portugal tem dois milhões de terra abandonada. *Expresso*, 07/04/2011.
- MARTINS, D. 2012. Urban and Peri-Urban Agriculture: Practices in Lisbon Metropolitan Area, contributions to food sovereignty.. Master, University College London.
- MUBVAMI, T. & MUSHAMBA, S. 2006. Integration of Agriculture in Urban Land Planning In: RUAF FOUNDATION (ed.) *Cities Farming for the Future - Urban Agriculture for Green and Productive Cities* RUAF Foundation, the Netherlands, IDRC, Canada and IIRR publishers, the Philippines.
- NUNES, L. S. 2011. Horta do Lar- Hola: Micro soluções para a sustentabilidade da família em tempos de crise. In: LANÇA, S., ed. Congresso internacional agricultura urbana e sustentabilidade, 2011 Seixal - Lisboa. Câmara Municipal do Seixal, 16, 30.
- OLIVEIRA, F. 2011. Estudo da articulação da Lei de Solos com o Sistema de Gestão Territorial. *Preparação da Nova Lei de Solos*. DGOTDU - Ministério do Ambiente e do Ordenamento do Território; Direcção Geral do Ordenamento do Território e Desenvolvimento Urbano;.
- PORDATA 2015a. BI de Portugal <http://www.pordata.pt/Portugal>.
- PORDATA 2015b. Indicadores de envelhecimento em Portugal. <http://www.pordata.pt/Portugal/Indicadores+de+envelhecimento-526>.
- PORDATA 2015c. Taxa de desemprego: total e por sexo (%) - Portugal. [http://www.pordata.pt/Portugal/Taxa+de+desemprego+total+e+por+sexo+\(percentagem\)-550](http://www.pordata.pt/Portugal/Taxa+de+desemprego+total+e+por+sexo+(percentagem)-550): P.
- RAMOS, A. 2011. Alves Ramos (2011) A integração de espaços de cultivo agrícola em contextos urbanos, Vale de Chelas, Dissertação para a obtenção do grau em mestre em arquitectura, IST, Lisboa. .
- RODRIGUES, S. 2012. Um modelo para a implementação de redes de hortas urbanas. Master, Instituto Politécnico de Viana do Castelo.
- RUAF. 2006. *Cities Farming for the Future - Urban Agriculture for Green and Productive Cities* RUAF Foundation, the Netherlands, IDRC, Canada and IIRR publishers, the Philippines, RUAF Foundation, the Netherlands, IDRC, Canada and IIRR publishers, the Philippines.
- SANTOS, F. 2011. Hortas Urbanas de iniciativa comunitária - Participação e Desenvolvimento: dois casos de estudo. *Tese de Mestrado*. Instituto Universitário de Lisboa - ISCTE.
- SARAIVA, R. A. 2011. As Hortas Urbanas na reconfiguração física, social e ambiental de Oeiras. *Tese de Mestrado*. Universidade Nova - Faculdade de Ciências Sociais e Humanas da Universidade Nova de Lisboa.
- SCHILLING, J. & LOGAN, J. 2008. Greening the Rust Belt: A Green Infrastructure Model for Right Sizing America's Shrinking Cities. *Journal of the American Planning Association*, 74:4, 451-466,.
- SOUSA, C. A. D. 2003. Turning brownfields into green space in the city of Toronto. *Landscape and Urban Planning*, 62 181–198.
- SOUSA, L. V. D. 2014. Experiências de agricultura (peri)urbana coletiva: outras experiências económicas? *Tese de Doutoramento*. Faculdade de Economia da Universidade de Coimbra.
- WOOTEN, H. & ACKERMAN, A. 2012. Seeding the City: Land Use Policies to Promote Urban Agriculture. <http://changelabsolutions.org/publications/seeding-city>.
- ZEEUW, H. D., GUENDEL, S. & WAIBEL, H. 2000. The integration of Agriculture in Urban Policies. *RUAF*, Thematic Paper n.º 7.