

Informal agricultural sites in the urban fringe

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RESUMO

Going along the roads and highways in and around Lisbon we can identify a number of urban gardens located on roadside verges, abandoned land, etc.

These gardens are a part of the urban food system and raise important questions concerning to food safety, such as heavy metal contamination from traffic, risks from difficult access to sites, etc.

But they also represent an important and poorly known, social function as income complement for the urban less favored population.

In this paper the authors use remote sensing data and GIS to visually identify, locate and determine their spatial arrangement and size, and the analysis of data provided by the National Statistics Institute to characterize the socioeconomic territorial context in which this kind of urban agriculture takes place, raising questions for future extended research on the subject.

Palavras chave: Urban agriculture, Informal urban gardens, Population, Lisbon

1. INTRODUCTION

The food function of urban agriculture is a matter of recent interest for planners. In fact, and during the crises period in Portugal, several unplanned agriculture areas have arisen, in an informal way, near abandoned places, vacant land and roadside verges, mainly in municipalities where agricultural land is scarce.

Informal agriculture or “guerrilla gardening”, in its most simple definition, consists in the occupation and use for agriculture of land sites that are either “stalled” or underused, without the permission of the relevant authority, by informal (and mostly illegal) groups sometimes called “guerrilla gardeners” (2015).

These places have important social functions providing the less-favored urban population with the means (such as land) to complement their food supply with fresh produce and, on the other hand, could be a way for migrants to keep in touch with the land, and their home country agricultural practices and products.

But they might also have relevant impacts on human health due to heavy metals accumulation such as Zinc, Plumb, and Cadmium, the concentration of which decreases with distance from the road. Therefore, produce from roadside verges is more likely hazardous for human health due to heavy metals accumulation. Studies show that Plumb and Cadmium levels on vegetation from roadside verges are above than recommended limit for vegetables (2006).

The tendency to occupy roadside verges, railway banks, abandoned industrial land, among other sites, was identified by the municipalities and several municipal urban gardening projects have already been put in place within proper public sites. In Lisbon city, several community gardens have been made available, some intended for self-production of food, others for leisure and recreational uses. These new gardens are integrated in the green infrastructure of the city.

Taylor and Lovell (2012) mapped public and pri-

vate spaces of urban agriculture in Chicago high-resolution images. They report that the contribution of private spaces including home food gardens, are generally overlooked when it comes to urban food production potential. In fact, results from this study suggest that home food production makes a substantial contribution to Chicago's urban food system and that ethnic and immigrant communities may be responsible for much of that production. Kemer and DeLiberty (2011) used remote sensing data and GIS to determine the land space potential for growing food in Philadelphia's residential yards. The research examining the urban gardening movement in the city suggests that personal food production in community gardens is filling the gap in low-income, inner city neighborhoods.

The aim of this preliminary analysis is to locate the informal agriculture areas in the city fringes and explore the relation of this local food system with the social context. The methodology combines remote sensing data and GIS in the analysis of these socio-spatial issues.

2. MAPPING INFORMAL URBAN AGRICULTURE IN THE FRINGE OF LISBON MUNICIPALITY

The study area included the municipality of Lisbon, and neighboring parishes from the municipalities of Oeiras, Amadora and Odivelas. The spatial analysis focused on these border parishes.

The urban agriculture areas were identified based on visual interpretation of an image data set. This set was comprised of high-resolution ortophotos (from 2007, 2009, and 2012), a 2010 WorldView-2 image with 50cm of resolution, and more recent Google Earth imagery (2014-106). The spatial dataset of the existing sites identifies a total of 96 plots, with a total of 68ha, and a mean area of 0.7ha (Figure 1). From this analysis, the municipal agriculture areas were dismissed. The informal characteristic was based on the visual inspection of the sites (Figure 2).



Figure 1 - Spatial distribution of urban agriculture in Lisbon fringe.

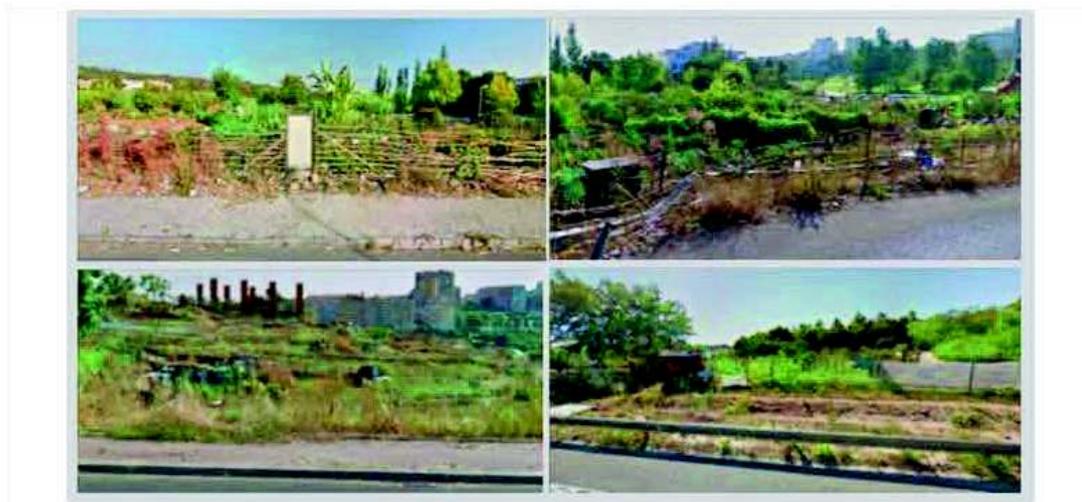


Figure 2 - Images of informal urban agriculture areas.

From the analysis we could confirm that the majority of urban agriculture plots are placed within areas bordered by railway or road infrastructures. Also when located in residual areas, it is generally in front of or nearby social housing.

3. SOCIOECONOMIC CONTEXT OF THE TERRITORY

With a total of 1 011 063 residents, the four municipalities in the territory are densely populated and informal urban gardens tend to arise in the most densely populated areas (Figure 3.)

In the municipalities analysed (except for Odivelas with 44,95 %), the inactive population represents close

to 50% (Oeiras) or above 50% (Amadora and Lisbon) of the residents, and unemployment rates range from 10,75 % in Oeiras to 14,96 % in Amadora.

Medium wage presents a wide variability in the four municipalities from 915,7 €/month in Odivelas to 1 673,90 € in Oeiras. Dependence of income from social security payments (Pensions, unemployment or illness) in relation to medium wage level is relevant in all municipalities and mostly in Odivelas.

In the fringe of Lisbon Municipality most urban gardens are located in parishes where Portuguese residents with a foreign place of birth represent between 7,6 % and 12,5 of total population (Figure 4 a.) and in most parishes more than 60% of those were born in Africa (Figure 4 b).

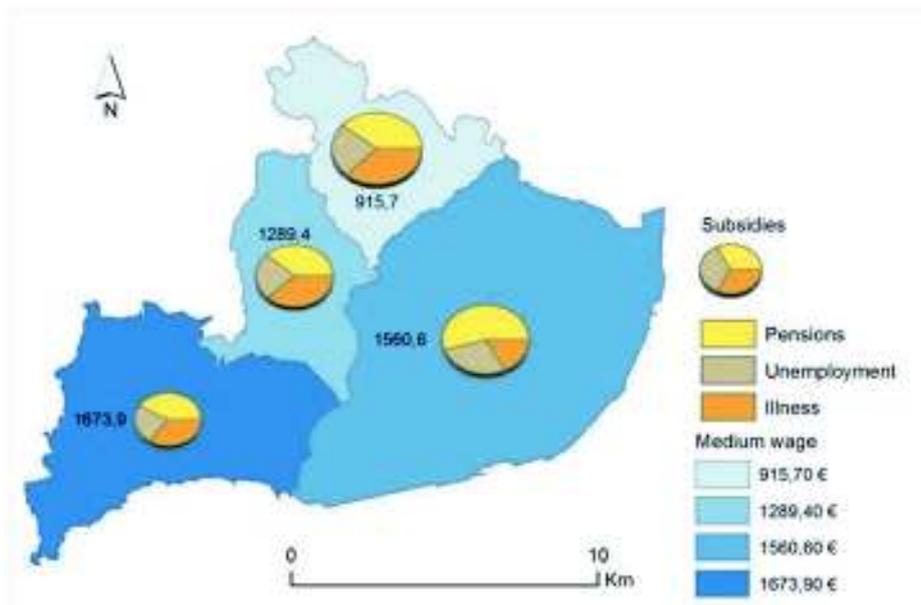


Figure 3 - Medium wage, Pensions and subsidies, INE.

4. DISCUSSION

Although we have no information about the underlying motivations of this occurrence, the numbers presented, medium wage and subsidies, weigh of migrants in total population, side-by-side with the location of social housing neighborhoods and scarcity of agricultural apt land, can help explain the tendency for residents to create informal urban gardens in less appropriate sites, such as roadside verges or potentially hazardous abandoned land (such as former industrial sites).

We are aware that socioeconomic analysis performed at municipal and parish level is too aggregated to allow for definite conclusions.

However, taking into account the location of this sites alongside with the socioeconomic analysis, we can hypothesize that “guerrilla gardening” production sites, might constitute a strategy of “guerrilla gardeners” to complement to households’ income, providing fresh produce, and perhaps to grow products from other cultures for traditional meals, representing therefore an important

social function, that should be looked at more closely.

In order to better understand major implications of these informal urban food gardens, not only for the household income, but also concerning potential health hazards resulting from exposition to heavy metals accumulated in food, and the additional risks from having to cross main roads, highways, or railways to access the garden, further investigation is needed.

Urban gardens are seen as a pillar of urban food system sustainability. The conditions in which they are implemented, however, must be looked at in an integrated approach, collecting information and increasing knowledge in order to provide suitable solutions for individuals as well as for society and the environment as a whole.

5. ACKNOWLEDGEMENTS

This paper presents results partially supported by CICS.NOVA - Interdisciplinary Centre of Social Sci-

¹ INE, Série Estimativas Provisórias Anuais da População Residente, e anuários estatísticos, 2014

ences of the Universidade Nova de Lisboa, UID/SOC/04647/2013, with the financial support of FCT/MCTES through National funds. The second author was funded by the Fundação para a Ciência e Tecnologia, under a post-doctoral grant (Grant SFRH/BPD/76893/2011).

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