

URBAN AGRICULTURE IN CITY PLANNING PROCESS. EXPERIENCES FROM PORTUGAL

1. INTRODUCTION

Portugal may be known as an agricultural country, but the reality is now far from that. In 2001, according to the official statistics (INE, 2009) the active working population in the agricultural sector was less than 5% of the total active population in the country (it was 48% in 1950). No wonder then that the Portuguese agricultural production in 2008 is less than 20% (in weight) of the total of agricultural products consumed in the country (INE, 2009).

However, for thousands of years, Mediterranean landscapes have been deeply associated with agricultural uses. With the actual reduction of agricultural activity, it's not only the rural economy that has declined but also the biodiversity, being well recognized the role that non-industrial agriculture has for the region's environmental balance. But the "urban+services" magnet continues to have a great influence on land-use patterns and on the loss of population and investments in the rural realm.

Food production was an important issue in Portuguese economy and regional planning until mid-XX century, even in peri-urban areas; the strong urbanization process that began by that period changed the focus and agriculture was since felt as a rural issue and accordingly, almost no more considered as a urban function.

But agriculture has not disappeared in the city just because urban planners were not considering it; in fact, on the opposite, agriculture always had territorial and social expression in the Portuguese cities and conurbations, even after the mid-XX century.

Today agriculture within city limits or urban agriculture is again recognized as a relevant issue in city planning, particularly when speaking of "low carbon" and "sustainable" cities: the distance between production and consumption of food, normally called as "food miles" is becoming an interesting debate issue, the green structure as provider of public services is becoming a new way to look at "green spaces", and the economic and social "crisis" is forcing planners to pay attention to UA again.

In this paper, and with the Portuguese reality as background, we will make some considerations on urban agriculture history, advantages, problems, on-going case studies, and conclusions.

2. A BRIEF OVERVIEW

Urban agriculture can be defined as "the growing, processing, and distribution of food and nonfood plant and tree crops and the raising of livestock, directly for the urban market, both within and on the fringe of an urban area" (Mougeot, 2006). So, it's a productive economic activity done mainly on open air situations in the urban realm.

In Portugal the tradition of green spaces in towns expresses itself more strongly since the XVI century with the "quintas de recreio" that surrounded the city center, providing it with fresh vegetables and fruits; cereal fields, olive orchards, vineyards and the raising of small cattle completed the overall picture of peri-urban agriculture, with the centers of production and consumption very close and well connected.



OLISIPPO (Lisbon) in the XVI century, with “quintas de recreio” and agricultural fields in the periphery of the city (in “Biblioteca Nacional Digital” <http://purl.pt/1420>)

Until the middle of the XX century that relationship between the city and its agricultural periphery was a major feature of the concentrated urban form in most of the Portuguese cities.

With the growing of the city limits and the internal migration from rural to urban areas, some of the new settlements were designed for those rural migrants, creating small private productive areas linked with the individual housing functions.



Study for a family housing unit (“casal”), with orchard and vegetable beds near the house, by Gonalo Ribeiro Telles, 1946 (in V.A., 2003)

In the seventies, with the degradation of the economic situation and the returning of many Portuguese families from former Portuguese provinces in Africa, some shantytowns grown in the periphery of the cities with small and degraded agriculture sites nearby; those were made on a subsistence basis, some times very badly tended, irrigated with sewage water and without any ecological or aesthetic value; we assume that for many people the messy image that they might still have about “urban agriculture” originates from this situation.



Shantytown ("Bairro de lata") in Lisboa, 1960/70?, with informal vegetable beds for self-sufficiency (*in* <http://www.esfcastro.pt:8079/users/franciscosilva/Bairrolata.jpg>)

Today, with most shantytowns already transformed in planned urban areas, is the work of the immigrants from former Portuguese speaking-countries in marginal areas (roadsides, as the most notorious) that constitutes for the average citizen eyes, the biggest expression of informal urban agriculture in towns.



Urban agriculture in marginal areas of roads, Amadora

However, the biggest urban agriculture areas are normally in ancient farms, former agricultural fields or big valleys, well inside the urban core, like the Chelas valley area, pictured below.



Large urban agriculture area, Chelas, Lisbon

3. WHY PLAN FOR URBAN AGRICULTURE

Urban agriculture is a real activity, but it seems that the urban planners in Portugal in last 4/5 decades have not fully created conditions for that activity to develop itself. So the areas used for UA are normally planned for other uses, and only tolerated or even banished from the areas where it has implanted itself.

From personal observations, these unplanned, opportunistic occupations of urban areas for UA tend to be locational or environmentally problematic: the use of low-quality water to irrigate crops, the use of potentially contaminated soils, the growing of food near heavy road traffic with corresponding air pollution and safety constraints, and the occupation of public or private properties without the consent of the owners, are some of the problems we have seen in our research in Portuguese urban agriculture.

So the need is there and the problems too; seems to be the perfect combination to work on both, and from what we saw so far, well planned and managed urban agriculture areas are the appropriate solution.

Likewise, more and more cities in the world have developed and still are developing planning UA schemes, not only because of the situations mentioned above but also - accordingly with Mougeot, 2006, page xiv - *“resource recycling and conservation, therapy and recreation, education and safe food provision, community development, green architecture, and open space management”* issues on mind.

4. URBAN AGRICULTURE AS GREEN INFRASTRUCTURE

The Portuguese law (“Decreto Regulamentar” n° 11/2009, 29 of May), recognizes agriculture as a compatible activity within the green infrastructure mentioning that “green spaces are areas with functions of ecological balance, open air recreation, leisure, sports and culture, agriculture or forestry”.

Another law (“Decreto Regulamentar” n° 9/2009, 29 of May) mentions that the green infrastructure within urban perimeters comprise public or private green spaces of collective use, with the functions of:

- a) Regulation of the urban hydrological cycle;
- b) Improvement of air quality;
- c) Biodiversity conservation.

UA has in fact the potential to help all these issues, but also to contribute to their deterioration; it all depends on how it is done. Nevertheless there's one important issue to be also considered: the maintenance costs of the public green spaces. With UA, those costs are not passed to the public authorities but on the farmers using that land; so if they farm in order to achieve hydrological efficiency goals, good water quality and biodiversity conservation, UA is effectively a good option to be considered within the green infrastructure.

5. URBAN AGRICULTURE AS A LOW CARBON APPROACH TO CITY PLANNING

Normally when we speak about "low carbon" cities we tend to refer the aspect of fossil energy consumption and the corresponding emissions of greenhouse gases, linked with potential global warming. For Portugal this also an economic relevant issue, regarding that we import more 80% of all the energy consumed in the country, being the petrol the major contributor to that figure (www.dgge.pt).

A recent document from the Portuguese Commission for Climate Change affirm that to cities trying to fight, or at least adapt, to climate change, is important to promote conditions favorable for the urban atmospheric circulation and for the control of air temperatures (COMISSÃO PARA AS ALTERAÇÕES CLIMÁTICAS, 2009, p.19).

Green spaces, particularly with trees, are known to help in these objectives. For instance, Gill et al (2007), have found that for the Great Manchester area, an increase of 10% in area of the existing green spaces could reduce the peak temperature in 4°C, thus compensating for climate change potentially occurring in the next 7/8 decades.

For Lisbon, both Oliveira (2004), Almeida (2006) and Andrade (2007), have found for an array of green spaces that, on summer days, the difference in air temperatures can be of 9°C from the cooler green spaces to the hotter surrounding built areas.

We could not found specific research on this subject for UA, but we believe that, as a green space component, UA can provide thermal benefits for the city not because of the presence of notorious wooded areas, but because of the improved evaporation that irrigated vegetables provide in the summer.

Another issue normally dealt with UA and low carbon cities are the energetic costs of food transportation, from the production areas to the consumption areas. This issue is very important for instance in the USA were products travel on average 1640 km between those areas (Weber and Matthews, 2008); but those Authors also found that the CO₂ emissions from food products are on average distributed in 85% for production and 15% for transportation and delivery.

For the production of this paper we made a visit to a hypermarket in Lisbon, in a typical day of July 2009, where we could find almost 150 fresh vegetables and fruit products for sale, the majority (54%) from non-Portuguese origins; but this is because there were more fruit products than vegetable products and almost all fruit products were imported (75%); on the opposite almost all the vegetables were from Portuguese origins (75%); also interesting is that only a small fraction of all products were from organic mode production (11%).

This of course is not statistically relevant, but gives an idea that most of the vegetables are of Portuguese origins, and the fruits of non-Portuguese origins, in terms of number of available products, not in terms of financial or sales relevance.

This analysis needs further study, but raises a question about what is local, for Portuguese standards? In a country with more or less 800 kilometers from one tip to the farthest other, and considering that very few of Portuguese fresh or fruit products travel so far, “local” can be “national”? It’s not possible to answer right now, but is a question for further research.

6. SOME PORTUGUESE EXAMPLES OF PLANNED UA

There are for some years now a great number of initiatives involving the creation of small-scale pedagogic kitchen-gardens in the open spaces of schools; one of the most known and coherent is the program “Biological agriculture and composting in schools”, run by the Municipality of Moita, since 1999.

Another initiative is the municipally-owned and managed sites for public access to the or “Pedagogical allotments”, where the public can visit and learn farming techniques or even farm their own plot; “Olivais Pedagogical Farm”, in Lisbon, is one of the first examples (since 1996) of the first situation, and the “Social and Pedagogical Allotments” of Guimarães (since 2008) of the second. Both are very well known locally, with a great number of visitors the first and farmers the second.



“Quinta Pedagógica dos Olivais”, Lisbon

“Quinta Pedagógica de Guimarães”

(in http://images.google.pt/imgres?imgurl=http://upload.wikimedia.org/wikipedia/commons/8/82/Quinta_Pedagogica_-_Lago.JPG

http://www.cm-guimaraes.pt/PageGen.aspx?WMCM_Paginald=16631)

Other situations are consequence of social housing operations, that involved the destruction of informal urban agriculture sites, replaced afterward by a planned space; one of the examples of this situation is the “Bairro do Ingote”, in Coimbra, where the municipality, with the technical support of the Agrarian Superior School of Coimbra, created in 2004 an allotment area; the success of that operation is pushing those entities to create more of those spaces through the city.

Another example is designed public parks that contain an area for kitchen-gardens or allotments; almost all of them recent, one good example is the “Bela Vista Urban Park” at Cacém, Sintra’s municipality. But maybe the older program of planned area for UA is one in Azambuja, where for now more than 60 years, “social allotments” are run by the local municipality, and still in use.

One of the most famous, widespread and well implemented urban agriculture programs is the one conducted by LIPOR (the intermunicipal agency for solid waste in the Porto's area); the "Horta à Porta" (Kitchen-garden at the door) program began in 2003, has already 12 allotment areas in function, with a global area of 2,5 ha; in each allotment every user takes care of 25 m² in organic ways of production.



Localization and number of the allotments in the "Horta à Porta" program , LIPOR
(in <http://www.hortadaformiga.com/conteudos.cfm?ss=7>)

In Lisbon, two big UA areas are being organized by the Municipality, but in areas where there's already informal agricultural occupation in Chelas (15 ha), and Benfica (3 ha); other UA areas will be organized or created in other parts of the city.



Quinta da Granja, with cereal fields, olive trees and vegetable beds
(in <http://www.skyscrapercity.com/showthread.php?t=603873>)

One of these will be in the area known as "Alta de Lisboa", the biggest planned urban area in Portugal (350 ha), where from the organization of local residents an "urban agricultural park" of 3 ha is about to be born, with the support of the local community institutions, local promoters and the Municipality, in a truly bottom-up successful approach.



Citizens meeting for the implementation of planned UA area in the “Alta de Lisboa”

Other initiatives are already implemented, or about to begin, all over the country, in a very positive moment and movement for the recognition of the environmental, economic and social values of planned UA programs. Researches about those are also gaining momentum in the academic Portuguese world.

7. CONCLUSION

It's difficult to know, for the Portuguese reality, the contribution that UA gives to the reduction of energy consumption in cities; as far as we know no studies or life-cycle analysis have been conducted, but this a very exciting field of research and we hope that in the near future, good figures will come to the debate.

We also have seen that not all informal UA realities are positive (due to safety, soil or water contamination, property and other reasons), but planned programs, which tend to be well-managed and with a concern or obligation of organic production mode, are more interesting for social cohesion, food production and environmental effectiveness reasons.

Most of the planned UA programs in the country are created by municipalities or municipal agencies, but bottom-up initiatives are also sprouting, in very positive local governance, social inclusion and sustainability attitudes.

So, even if the contribution of the planned UA to the de-carbonization of the urban society is not too big when compared with other sectors like public transportation, electric cars, or renewable energy, it also has a word to say in that process, and is for sure one for urban functions with social, territorial and environmental interests, where further work and research are to follow in the years to come.

8. REFERENCES

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