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Food system photographic portraits: A necessary urban design agenda.

ABSTRACT: Research suggests that design solutions are an influential factor in the sustainability performance of food systems. Yet, such systems remain underexplored within architecture and urban design. We argue that some architectural surveys of the 20th century encapsulate urban form solutions which bear on food issues, and therefore deserve further consideration. Our findings point out that identifying food concerns within such surveys would promote proposals of urban form design solutions, which are necessary to integrate contemporary urban planning compendiums, but also to promote further dialogues among those concerned for food and urban design.

1 INTRODUCTION

1.1 *Food and the City*

The incorporation of food into urban planning is not a novel issue. Urban History provides a rich repository of examples, which testify the strong role of food on shaping a wide range of towns, villages, cities and territories, throughout all world continents and different periods.

Considering for example Nowdushan, located in Iran, a town of Persian origins conditioned by a rural system and irrigation ditches (Kostof 1991) or the case of Lisbon, the capital of Portugal, whose present public space derives from the need of the city to access water (Marat-Mendes et al. 2015, Marat-Mendes et al. 2016), one easily identifies how the main dietary elements (food and water) can shape urban areas throughout History. Furthermore if one considers the 14th century Abrogio Lorenzetti frescos of 'The Allegory of Bad and Good Government' painted in the Palazzo Pubblico in Siena, Italy, alongside the late 19th century Garden City theory by Ebenezer Howard, one will find these share a common proposition: a society and a governmental commitment towards the city and the territory in order to sustain in equilibrium, peace and public health, which implies the inclusion of the food system in urban environments. For instance, the Sienna agrarian and peasant way of life, determined specific urban form solutions, territorial arrangements outside the city walls and built structures inside them. As for the Garden City, specific housing arrange-

ments and allotments, as well as areas for mass food production, including cereals, or fruits, flowers and vegetables, preferable for individual production, each determined particular urban form arrangements with implications on the food system.

The impact of food on urban form is indeed substantial, extending through several phases, including production, transportation, transformation, packaging, consumption and recycling (Steel 2013), but also several spheres and activities of human life. From the perspective of labour, major changes have occurred since the 1970s when agricultural labour started to decrease, to the point of near-disappearance (Fischer-Kowalski & Haas 2014). Such changes also influence the conviviality sphere, as previous common spaces shared by communitarian agrarian activities have meanwhile lost their use and meaning. Nevertheless, contemporary urbanism reclaims new convivial spaces, to which the food system can contribute to (Parham 2016).

The repository of urban elements, which cover all these dimensions of the food system and human activities, should be met with diversified and generous design solutions, responding to diverse socio-economic and environmental realities. It should include public space, rural systems, water elements like irrigation ditches, but also other elements, which have already been registered by Urban History and in contemporary urban forms, in use by society today, according to present needs.

This fascinating relationship between food, the city, the territory and society, suggests several research questions that have been gaining attention. Indeed, since the arrival of the new millennium, the

time of publication of ‘The Food System: a stranger to the planning field’ by Pothukuchi and Kaufman (2000) that research literature in the field has gained greater momentum (Brinkley 2013, Marat-Mendes et al. 2018).

1.2 *The Food System as an urban issue*

The spatial dimension of the food system, with its inherent urban forms, remains underexplored. A reduced and uninspired repository of morphological types has been found in urban food-production spaces in some municipalities of the Lisbon Region (Dias 2018; Marat-Mendes et al, 2018). Despite this lack of creativity and innovative design solutions, the production phase of the food system has received special attention from academic research, even though most authors would agree that the food system is a pattern or a holistic multi-level system.

A further opportunity for design is in assessing the role of food in the socio-metabolism of the territory, as this can inform designers on contributing to close loops of water, nutrients, energy and materials to improve sustainability (Kennedy 2010). Infrastructures, and its associated urban form elements, are also determinative to improve the socio-metabolic functioning of cities, a relation in which the food system is strategic.

However, urban infrastructure has seldom been considered in this context. Such tendency as discussed by Pothukuchi and Kaufman (2000) points towards an ‘estrangement’ of the food system to urban planning. We would suggest however, that readings of the food system from the standpoint of infrastructure would allow for a greater ‘spatial’ reading of the food system and its design. Gandy (2004) has pointed out how modernity, through technology and culture brought about new infrastructures, a ‘hidden city’ of sewages and hydraulic systems running under streets and built masses, which allowed sanitary conditions to be dramatically improved. Other forms of infrastructure – roads, highways, reservoirs, garrers, waste management stations, etc. – also remain fundamental for the functioning of contemporary cities. The food system is one example where both visible and hidden infrastructures concur. A study of urban (spatial) food systems would benefit greatly from including the infrastructural conditions of cities and their surrounding areas.

With respect to architecture and urban planning, Viljoen et al. (2005) point out the potential of urban agriculture for the creation of a ‘productive multi-functional landscape’ with spatial, social and environmental implications.

Urban form, understood as the configuration of fixed metropolitan elements, comprises several important features of cities, including density, compactness and land-use, the importance of which is very considerable within the food system.

Yet, design solutions for such spatial dimension of the food system require further attention (as recalled by the *Urban Design Journal* issue number 140 from 2016) as well transdisciplinary research in long-term projects that effectively assess the sustainability of urban changes (Baccini et al. 2008).

Architecture emerges therefore as an important tool, or an opportunity, to explore such design issues and enlarge our understanding of the urban forms that integrate food system functioning, including infrastructures. A methodological approach to such exercise could draw from visual characterization of existing built structures, making use of photographic records and systematizing identified elements according to its different types and territorial situations. This approach has been explored in studies of urban metabolism, while articulating cartographical sources and photography with methodologies used by engineers, such as Materials Flow Analysis (Marat-Mendes et al. 2016). Reconsidering the role of architecture in basic human activities may also provide a way for architects to escape their alienation from urban planning debates (Figueira 2016).

1.3 *Structure, methodology and aim*

To ascertain relations between the food system and urban design, this article is divided into four parts. Following this introduction, two sections retrieve food-related structures from two of 20th century architectural surveys, the ‘Inquérito sobre a Arquitectura Regional Portuguesa’ (IARP), started in 1955 and published in 1961 as ‘Arquitectura Popular em Portugal’ (AAVV 2004); and the ‘Inquérito à Arquitectura do Século XX em Portugal’ (IAPXX), started in 2003 and published three years later (AAVV 2006). The first studied vernacular, popular and traditional architecture in Portugal. The second focused on representative examples of 20th century architecture. For each one, we provide an overview of food-related examples. A comparative reading will be presented in the Discussion, while the Conclusion will briefly discuss how visual characterization may help integrate the food system into urban design and architecture practices.

As will be exposed, both analysed surveys sought to present extended overviews of specific realities of the Portuguese territory, and thus constitute key contributions for assessing the History of Architecture in Portugal. But given the materials they include, they may also suggest ways to make future architecture and urban design more sustainable.

2 THE SURVEY ON PORTUGUESE REGIONAL ARCHITECTURE (IARP)

2.1. Context, goals and methodology

After the International Union of Architects Congress in Lisbon 1948, the influence of the Modern Movement was incorporated in Portuguese architecture, despite resistance from the dictatorial regime. However, the perception of the Portuguese on modernism started to change soon, and concerns shifted towards a 'humane' architecture, which included an interest in local traditions and relations between built and natural environment (Tostões 1997). This shift is signalled by architect Francisco Keil do Amaral (1947) in his 1947 article 'Uma iniciativa necessária' (*A necessary initiative*), which defended the need for a survey on regional architecture. The article follows a suggestion by Brazilian architect Lúcio Costa (1938), who wrote in 1938 an article, 'Documentação necessária' (*Necessary documentation*), claiming that autochthonous architecture in Portugal was a high-quality universe which the Portuguese had yet failed to acknowledge.

Surveys on vernacular, popular and traditional architecture were conducted in several European countries in the mid-20th century, including Germany, France, Italy, England, Spain and Greece (Dimitantou-Kremesi & Marat-Mendes 2012). In Portugal, geographer Orlando Ribeiro had coordinated surveys on rural settlements, aiming to establish regional habitat typologies, according to natural and historical evolution, property regimes and communities' life (Cabrita & Marat-Mendes 2013). Moreover, architect Fernando Távora has written on the problem of the 'Portuguese house' since 1945, which he believed could provide lessons for 'new intentions' in architecture (Cabrita & Marat-Mendes 2013).

It took nearly a decade for Keil do Amaral to obtain permission and financing to conduct this survey. In 1955, Eduardo de Arantes e Oliveira, then the Minister of Public Works, accepted the proposition.

The country's territory was divided into six zones – Minho, Trás-os-Montes, Beiras, Estremadura, (including the Lisbon Region), Alentejo and Algarve – to which six team of architects was assigned. Their aim was to collect, through drawings and maps, but mostly photography, a characterization of traditional, vernacular and popular architecture in Portugal, with a particular focus on the countryside. Over 10 000 photographs were collected. Results were presented to Oliveira Salazar, in April 1958 (AAVV 2004). The idea that a typical 'Portuguese house' would result from this survey was disproved, as regional realities were astonishingly specific (Tostões 1997).

The 'IARP' is a key moment for the development of a Modern Architecture in Portugal, whose influence extends to the present. Although the 'IARP' seemed to serve the interests of the regime, namely

an appreciation of an architecture with national identity and a focus on rural territories (Cabrita & Marat-Mendes 2013), for architects, its use was more pragmatic. It allowed a critique of the rationalist excesses of the Modern Movement, showing that vernacular buildings contained their own rational organization of space, as well as articulations between territories, buildings and communities (Tostões 1997). This may explain why, despite the general guidelines, no coherent methodology was followed, and no systematization of surveyed materials was attempted, as it had been, for example, in the geographical surveys of Ribeiro (Cabrita & Marat-Mendes 2013).

The 'IARP' allowed Portuguese architects to envision new articulations between international modernism and local realities, as seen in the Portuguese presentation at CIAM 10 (Congrès Internationaux d'Architecture Moderne) in Dubrovnik 1956. A collective housing estate for a rural community was presented, drawn from examples in Zone 1 (Minho) of the 'IARP' (Marat-Mendes & Borges 2017), thus providing new readings of urban form and human activities, as is the case of food production and the spatiality of the food system. More recently, a 'IARP' website was created to provide more photographs

(<http://www.oapix.org.pt/300000/1/index.htm>).

2.2 A sample of a Photographic Portray on Food & Urban Form in IARP

In the 'IARP', it is possible to identify several building types and settlements connected with the food system and water provision. In the Lisbon Region, these include farms, rural housing (mostly individual, but also collective), as well as windmills and watermills, haystacks, public wells and fountains, saline and commercial facilities. Although the Zone 4 (Estremadura) of the 'IARP' included the Lisbon Region, most surveyed examples are not located in urban centres. In the particular case of food system structures, nearly all of them are located in rural areas, showing that by the mid-20th century, a considerable part of the Lisbon region territory was dominated by food-production.

The images show a region where agrarian activities are often untouched by industrial transformation. Scale of buildings is usually contained, and landscape is highly valued for its productive capacities. It is interesting to observe the photographs as such. Framing is fundamental, and most photographers made a clear effort to portray the situation of buildings in their surroundings. Land is a fundamental extension for many buildings (Images 2, 3, 6, 11, 14 and 15 in Fig.1), a direct consequence of their agrarian context.

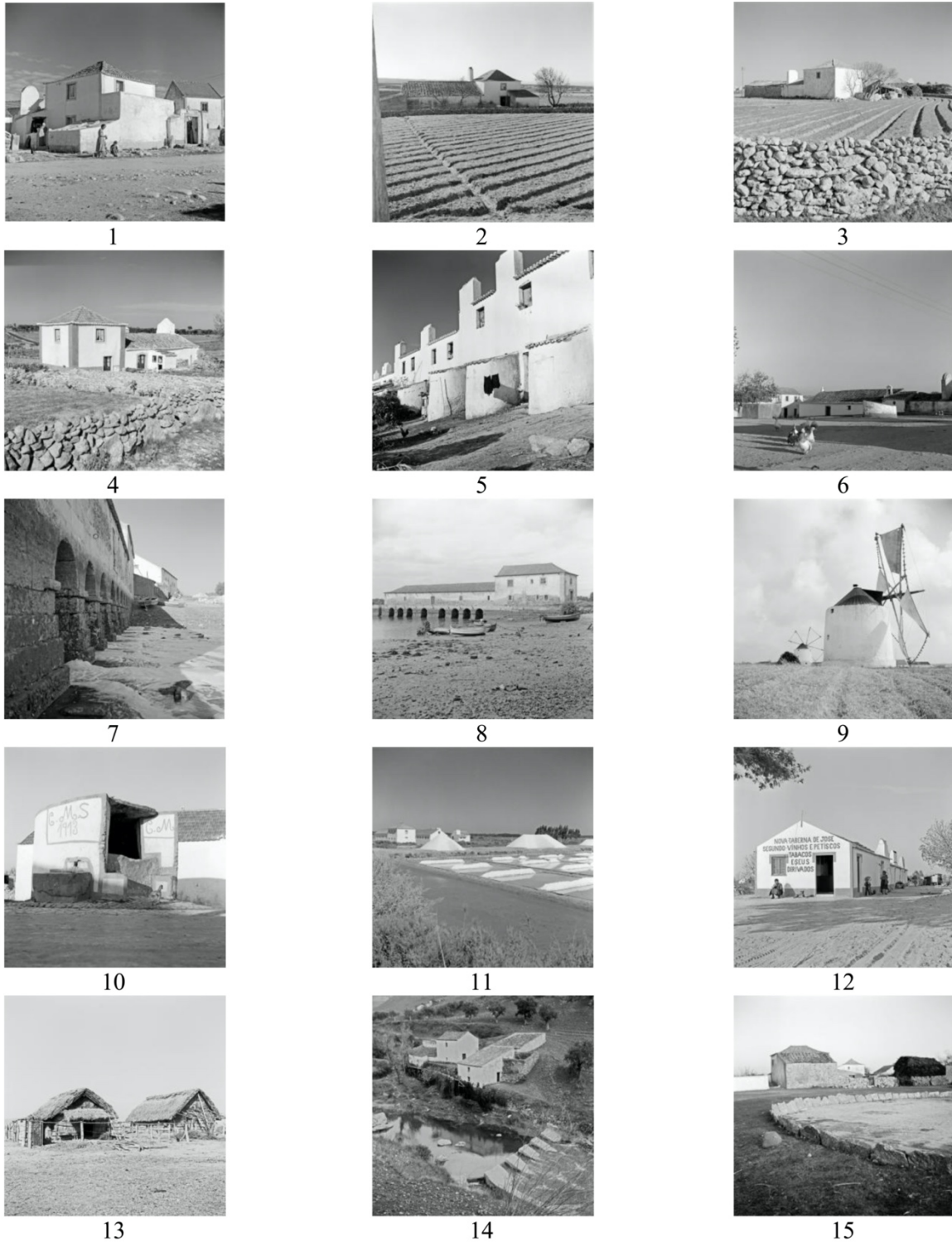


Figure 1 – *Inquérito sobre a Arquitectura Regional Portuguesa (1955-1960)*, food-related structures in Lisbon Region: **1** - Rural house in Cascais [PT-OA-IARP-LSB-CSC00-012]; **2** - Rural house in Assafora, Sintra [PT-OA-IARP-LSB-SNT00-070]; **3** - Rural house in Assafora, Sintra [PT-OA-IARP-LSB-SNT00-014]; **4** - Settlement in Sintra [PT-OA-IARP-LSB-SNT00-049]; **5** - Ilhéus housing in Picanreira, Mafra [PT-OA-IARP-LSB-MFR13-002]; **6** - Public square in Fontanelas, Sintra [PT-OA-IARP-LSB-SNT00-025]; **7** - Watermill in Rouxinol, Seixal [PT-OA-IARP-STB-SXL00-001]; **8** - Watermill in Seixal [PT-OA-IARP-STB-SXL00-005]; **9** - Windmills in Ericeira, Mafra [PT-OA-IARP-LSB-MFR06-003]; **10** - Public covered well in Fontanelas, Sintra [PT-OA-IARP-LSB-SNT00-008]; **11** - Saline in Alcochete [PT-OA-IARP-STB-ACH01-002]; **12** - Tavern in Pegões, Montijo [PT-OA-IARP-STB-STB00-002]; **13** - Haystack and servants' house in Vila Franca de Xira [PT-OA-IARP-LSB-VFX00-003]; **14** - Watermill in Venda do Pinheiro, Loures [PT-OA-IARP-LSB-LRS00-001]; **15** - Threshing floor in Arneiro dos Marinheiros, Sintra [PT-OA-IARP-LSB-SNT00-056]. © Ordem dos Arquitectos

3 THE SURVEY ON THE 20TH CENTURY ARCHITECTURE IN PORTUGAL (IAPXX)

3.1 *Context, goals and methodology*

Four decades passed from the research of architect Nuno Portas who, funded by the Calouste Gulbenkian Foundation (c. 1960), identified architectural examples considered significant by him, accompanied by brief comments and one or two photographs. Later, this work informed the final chapter of the Portuguese edition of Bruno Zevi's 'Storia dell' Architettura Moderna' (Portas 2006). Portas selected examples of Portuguese modernist and modern architecture (Toussaint 2009). For many years, Portas' article, local architectural guides (Ferreira 1987, Berger et al. 1994, Fernandes & Cannatà 2002) and monographs on specific architects established an idea of twentieth-century urban architecture in Portugal, while vernacular and popular architecture remained fundamentally covered by 'IARP'.

A survey on the 20th century architecture in Portugal, 'IAPXX' was promoted in September 2003 by Ordem dos Arquitectos (Portuguese Institute of Architects), in partnership with the Mies van der Rohe Foundation and the Instituto das Artes (Arts Institute), with financing from Interreg III - SUDOE. With scientific coordination by Ana Tostões, the survey intended to represent 20th century architecture, helping to draw up strategies for safeguarding Portuguese built heritage.

The work, conducted until April 2006, had the methodology applied in 'IARP' as reference. Consequently, the territory was divided in six regions – North, Centre, Lisbon and Tagus Valley, South, Azores, Madeira – and each was assigned a team of architects. Each team had available for the fieldwork (circa 10 months) cars, computers, digital cameras, a pre-designed database and a software for GPS identification. Examples included both vernacular and popular or author architecture in all Portuguese territory, meaning cities, towns and villages anywhere, including the countryside. 180 000 km were covered. In a total of 308 municipalities, 290 were covered by IAPXX. The idea was not to build a History of Portuguese Architecture of the 20th century, but rather to bring architecture closer to civil society, emphasizing its quality.

Researchers recognized architectural work as belonging to different typologies, including bandstands, houses, buildings, factories, water reservoirs, train stations, urban plans, among many others related to functioning of the food system. In the end, more than 5000 architectural works were identified and 100 000 photographs were collected in the database, later posted online

(<http://www.iap20.pt/Site/FrontOffice/default.aspx>). A summary was published in book form (AAVV 2006). Some examples were signed by renowned Portuguese and foreign architects, nevertheless, this

survey acknowledged unknown works and designers, as well as representative buildings in a high state of degradation. One of the strengths of 'IAPXX' is its recognition of the plurality of architecture in Portugal, beyond the boundaries of dominant critical discourse. Just like 'IARP' showed great variety within autochthonous construction, so 'IAPXX' accounts for a century of architecture far more eclectic than historiography would usually concede. Furthermore, it is only possible to promote the safeguarding of paradigmatic architectural works when the totality of the built patrimony is known. Thus, 'IAPXX' must be understood as a tool for the Direcção-Geral do Património Cultural (Directorate General of Patrimony), the Portuguese institution for recognition and classification of real estate.

3.2 *A sample of a Photographic Portray on Food & Urban Form in IAPXX*

Although that was not the intent of 'IAPXX', it is possible to identify urban forms associated to food system and water provision. The Lisbon Region is covered in the inventory from the Lisbon and Tagus Valley team, coordinated by João Vieira Caldas and José Silva Carvalho, and the South team, coordinated by Michel Toussaint and Ricardo Carvalho. Here, we highlight markets, factories, cooperatives (wine/oil), water springs, water tanks, canteens, houses/farms with a sustenance agriculture area, etc., located in urban centres, others in the countryside.

The images show several scales of buildings. Some equipment justified a collection of photographs and drawings; nevertheless, some images do not do justice to the quality of architectural works. It also happens that many food-related urban forms may have escaped this inventory. For instance, sustenance gardens in family urban houses or farms, in some cases, may have not been even photographed, but we know that they existed (Images 7 and 8 in Fig.2). In the case of the manufacturing structures linked to the food system, many were located in peripheral areas of the cities, near the riverbed or railway stations (Images 4, 11 and 12 in Fig.2), however, many examples are today abandoned and some explored for tourism. The water infrastructures serve the population clusters or these manufacturing structures (Images 12 and 15 in Fig.2). Now, the land is no longer an extension of buildings, especially since it is much more valuable as urban property.

Another important aspect is the variety of architectural aesthetics encountered, ranging from traditional designs (Images 3, 6, 7 and 8 in Fig.2) to modern ones (Images 2 and 5 in Fig.2), to the characteristic style of the New State, called 'Português Suave' (Soft Portuguese), a mesh of neoclassic and Art Deco aesthetics (Vieira de Almeida & Fernandes, 1986) visible in Image 9 in Figure 2.



1



2



3



4



5



6



7



8



9



10



11



12



13



14



15

Figure 2 – IAPXX – *Inquérito à Arquitectura do Século XX em Portugal*, food-related structures in Lisbon Region: **1** - Regional Winehouse in Colares, Sintra [L100501]; **2** - Galeto Snack Bar, Lisbon [L100781]; **3** - Milk house ‘A Camponesa’, Lisbon [L200394]; **4** - Municipal slaughterhouse, Vila Franca de Xira [L100355]; **5** - University Canteen, Lisbon [L200246]; **6** - Public economic kitchen, Lisbon [L200312]; **7** - Vila Amélia sustenance garden, Odivelas [L300214]; **8** - Rio Frio Manor, Palmela [S200293]; **9** - Portugália Beer Factory, Lisbon [L200322]; **10** - CUF Mill, Almada [S100658]; **11** - Grain silos, Almada [S100670]; **12** - Oyster depuration centre, Moita [S200482]; **13** - Fish selling lot, Setúbal [S200168]; **14** - Campo de Ourique Marketplace, Lisbon [L100671]; **15** - Water reservoir, Barreiro [S200918]. © Ordem dos Arquitectos

4 DISCUSSION

For urban design to integrate the food system, one main challenge is to recognize its inherent spatiality. Figures 1 and 2 show examples of built structures, mostly buildings, and, to a lesser extent, settlements and equipment, which help clarify this spatiality. Particularly in the 'IARP', some photographs show land-uses and their relations with buildings. In 'IAPXX', examples are predominantly architectural.

Comparing the two surveys, one encounters a profound change in the territory of the Lisbon Region. Whereas in the 'IARP', most food-related structures are characteristic of a technologically simple agrarian production system (Fig.1), the examples from 'IAPXX' shows the appearance of industrial facilities and a new relevance for food-consumption spaces (Images 9, 10, 11, 12 and 15 in Fig.2).

This exposes how the socio-metabolism of the Lisbon Region has changed between these two surveys. On the first, solar energy and animal labour were the dominant energy source for agricultural activities. On the second, industrial production allowed new flows of energy and materials within the Region, including electricity and fossil fuels. The comparison of surveys reveals how the socio-metabolic aspect of the territory is intrinsically marked by human activities in the natural and built landscape.

Large-scale facilities for the food system are inexistent in the 'IARP', but there are plenty in 'IAPXX'. The specific territorial arrangements linked to agriculture were once a structuring force in the Lisbon Region, but land-use and urban planning have change considerably since then and a greater segregation between urban and rural is now evident with repercussions in spatial planning and the territory itself (Marat-Mendes et al. 2018).

Agricultural labour in most of the photographs from the 'IARP' (See images 4, 5, 6, 10, 11, 12 and 15 of Figure 1) seemed to provide its own form of conviviality around food-related activities. No food-related public equipment is present in the 'IARP', showing that concerns expressed by Parham (2016) on the convivial aspect of food are particular to present times, marked by urbanization and consumption. This contemporary notion of food-based conviviality is illustrated by 'IAPXX' examples of marketplaces, restaurants and cafes (See images 2, 3, 5, 6, 13 and 14 of Figure 2).

If Viljoen et al (2005) have suggested a 'Continuous Productive Urban Landscape' of allotments and urban farms to ensure environmental quality and food-provision in cities, these Portuguese surveys expose that the conditions for achieving this may have decreased with the reduction of agrarian areas and urbanization. Such move was necessary, as in 1960s, Portugal was under-industrialized and needing modernization in many social aspects, including the territory and the production system. However,

this bygone rural reality, reflected in 'IARP', might contain possible lessons for establishing a necessary urban agenda for sustainability. In 'IAPXX', the diversity of built structures reveals opportunities for solidifying links between urban and rural activities.

5 CONCLUSIONS

Although these two surveys were guided by different aims, they allowed retrieving some representative examples of the food system spatial dimension. These show how ubiquitous the food system is in human activities and in the territory. Technology made surveys possible, specifically by photography, analogic in the 'IARP' and digital in the 'IAPXX'. These photographs have great aesthetic importance – the 'IARP' allowed Portuguese architects the development of a specific interpretation of modernism, and 'IAPXX' presents a far-reaching overview of 20th century taste and sensibility, both popular and erudite. However, these materials are no less important as the other documents. Susan Sontag (2008) claims that scientists use photography to produce an inventory of the world, which was certainly the methodological approach of both analysed surveys. They were expected to give a comprehensive account of specific forms or timeframes in Portuguese architecture.

However, as Sontag (2008) also claimed, photography is a fragmentary moment cut off from time, a quotation, turning a photography book into a book of quotations. Thus, many other quotations would be possible within the same territory. The diversity of food-related structures identified here shows that a survey specifically aimed at the food system of the Lisbon Region would be possible.

Considering the important role of the food system in the socio-metabolism of territories (Marat-Mendes et al. 2018), such surveys are increasingly important. For architecture and urban design they are an opportunity to rediscover elements of urban form that may accommodate sustainable changes in cities. Thus, it is necessary to counteract the deficit of urban form design solutions for the overall food system, allowing further improvements on the ground and on urban design practice itself.

The examples discussed here occur in the territory in several scales, associated with different uses and with specific relations to the land. As such, they are highly diversified. More effort is therefore needed from architects and urban designers to fully acknowledge such diversity and bring to the debate new creative design solutions to enhance the role of food in urban systems.

'IARP' and 'IAPXX' show that food-related structures have a considerable mark in the landscape and in the collective memory that forms around such landscape. When observing these images, it is im-

portant to understand their meaning in our perception: as Sontag (2008) reminds us, photographs change our notions of what is worth looking at and what we can observe, and thus constitute an ethics of seeing. Observing certain aspects of the world through photography promotes further understandings of it and allows imagination to creatively transform it, towards better built and natural environments. The examples extracted from these two surveys are inspiring starting-points for imagining how food can help us design our way into sustainability.

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