

Urban Planning and Territorial Management in Portugal: Antecedents and Impacts of the 2008 Financial and Economic Crisis

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Abstract (not included in the chapter)

This chapter aims to discuss the role that recent developments in urban planning and territorial management in Portugal have played with regard to the outbreak of the financial and economic crisis. On another hand, it also intends to address the impacts that the crisis had on urban planning and territorial management in Portugal.

To inform this discussion, an overview of the recent history of urban planning and territorial management in Portugal is presented, addressing the Municipal Master Plans. It analyses three specific periods: 1988-1998, when the first Municipal Master Plans were elaborated, 1998, the year of the publication of the first Ground Basis Law on Territorial Planning and Urbanism and 1998-2008, when the second generation of Municipal Master Plans was developed, already under the provisions of the new Ground Basis Law, and within the framework of the Strategic Environmental Assessment, calling for the consideration of new global ecological concerns. Such antecedents are important to understand the bilateral relations between urban planning and territorial management activities and the recent financial and economic crisis.

1. Introduction

This chapter aims to discuss the role that recent developments in urban development and urban planning in Portugal have played with regard to the outbreak of the economic and financial crisis, and the impacts that this crisis had on urban planning and territorial management in Portugal.

It is an assumption that the recent developments in urban planning, territorial management and urbanization in Portugal were motivated by drivers that also lead to the financial and economic crisis, in particular the real state financial sector. Therefore, the crisis is strongly interconnected with urbanization processes as well with urban planning and territorial management activities. Thus, it is a specific objective of this chapter to describe this interconnection, while explaining the evolution of recent urban planning and territorial management in Portugal.

The section (*Urban Planning and Municipal Plans in Portugal from 1988-2008*) presents an overview of the recent history of urban planning and territorial management in Portugal, addressing the process of elaboration of the Municipal Master Plans (PDM) from 1988 to 2008. Three specific periods will be analysed: 1988-1998 when the first Municipal Master Plans were elaborated; 1998 the year of the publication of the first Ground Basis Law on Territorial Planning and Urbanism (LBPOTU), and; 1998-2008 when the second generation of Municipal Master Plans was developed under the provisions of the new Ground Basis Law, and within the framework of the Strategic Environmental Assessment (SEA), calling for consideration of the new global ecological concerns.

The following questions will have a central role in this section of the chapter: Did the territorial development patterns foster construction activities so that the crisis emerged? How regulation bodies, planning laws and directives were related with the territorial development which contributed to the crisis? Were the planning laws arriving to late or were this not strong enough to control 'illegal urbanism'?

To describe the interconnection between urbanization and the crisis it is needed, on one hand, to address the impacts of urban development and planning on the evolution of the crisis and, on another hand, to address the feedback impacts that the crisis had on urban development and on urban development and planning.

Thus, the next section of this chapter (*Urban planning and impacts related to the financial and economic crisis*) aims to address these bilateral impacts between urbanization and planning activities and the crisis, in Portugal. Furthermore, in this section, the paper analyses what impacts the urban planning and territorial management in Portugal have caused on environmental protection and on the use of energy and on mobility patterns, amplifying the effects of the crisis over the municipalities and families. Additionally, alternatives for urban planning and territorial management will be shortly addressed, illustrating the effects that a restricted access to fossil fuels can have on urbanism.

The following questions will have a central role in this last section of the chapter: What are the impacts of the crisis planning needs to deal with? Does the current crisis changes planning in terms of ensuring environmental protection and implementing SEA?

With these two sections of the chapter it will be evidenced that Planning in Portugal, while finally holding the adequate instruments to properly develop Municipal Master Plans (PDM), faces the effects of the economic recession caused by the crisis. It has taken a long time before such instruments could be adopted, since their legal framework has arrived late. The Ground Basis Law on Territorial Planning and Urbanism (LBOTBU) (PP, 1998) and the Juridical Regime of the Territorial Management instruments (RJIGT) (MEPAT, 1999) were published a decade after the elaboration and application of the first Municipal Master Plans had started, shortening the possibilities of preventing activities which fed the outbreak of the crisis. Additionally, the Strategic Environmental Assessment (SEA) framework for Urban Planning also arrived late and, deriving from the European Union Directives (Directive 2001/42/CE) (Partidário, 2007), presented an opportunity which was not always concretized when applied to Portuguese planning culture (CNADS, 2012). The obligation of evaluating Planning brought advantages and a better control over the results and impacts of Planning. In this line, the environmental impacts of urbanization, and those related to nature conservation were progressively taken into account. At the same time, the issues of energy dependence, carbon emissions and climate change were only inserted later on in these evaluations, being still in an early stage of development.

2. Urban Planning and Municipal Plans in Portugal from 1988-2008

The present section offers an overall portrait of the urban planning framework, which have defined the territorial development and management in Portugal, during the two decades immediately before the crisis outbreak (1988-2008).

The democratic local government was established in Portugal in 1976, yet in the following decades the legislation on spatial planning was insufficient and inefficient. Only in the early 80s the urban development became legislated (Decree-Law No. 208/82) and the first Municipal Master Plans (*Planos Diretores Municipais* – PDM) were adopted. However, it has taken further 25 years to equally develop the Municipal Master Plans for the whole national territory.

Until 1998 Portugal lacked a Ground Basis Law on Territorial Planning and Urbanism. Furthermore, it still relied only on the Law of 1976, designed mostly to create public land stocks and to regulate the market in times of strong urban expansion (Monteiro, 2008). In the absence of a Land Law, Municipal Planning had an important role to play for the land use planning in Portugal in the last 20 years and was responsible for the classification of land. However, although the Portuguese Constitution states that the Municipalities are the entities which should define the right to land use change (Monteiro, 2008), in practice the right to convert rural land into urban land it is not clearly differentiated from the civil right to own private property. Thus, citizens have considered that owning rural land automatically assures the right to convert that land into urban land, without following the restrictions of municipal planning. This wrong assumption lead to the explosion of illegal urbanism in democratic Portugal and, together with other factors, opened an opportunity to the real estate sector to develop freely and rapidly.

2.1. 1988-1998: The first generation of plans

The Municipal Master Plans (PDM), in force in Portugal today, were practically all elaborated between 1988 and 1998. These represented the main tools for urban planning at the municipal level. The elaboration of the plans has been encouraged by the European Union, in particular since 1989. However, the framework for their preparation was set only after the adoption of the Ground Basis Law on Territorial Planning and Urbanism in 1998 (*Lei de Bases da Política de Ordenamento do Território e Urbanismo* - LB POTU), ten years after the elaboration of the first Municipal Master Plans, when most of them had already been completed.

The regulation for the conversion of rural land into urban land, together with the national policy on road infrastructure, were main drivers behind the Municipal Master Plans. The efficiency of this regulation, however, was restricted, since the distinction between urban and rural land, although existing in the plans, was not followed in the reality by the formal and informal territorial changes (Carvalho, 2003) and it was not recognized by the citizens. As a result, in several municipalities the construction grew almost as intensively in urban areas, where it was allowed and expected, as on rural land, where it was restricted by the plans dispositions (Mourão, 2012). This caused the raise of the offer of built land and housing (either legalized or not) contributing to the outbreak of the local financial and economic crisis, triggered by the global crisis. Based on formal plans, and also on informal trends, urban areas for construction expanded largely and dissociated from population needs and from the existing infrastructure networks.

The structural role of open and green spaces was scarcely recognized at that time, and planning was relying mostly on zoning procedures and construction indexes (Portas et. al, 2003). Thus, the first generation of plans defined large areas where it was allowed to build, justifying it with the reduction of the average size of families and the increase of secondary housing needs. This resulted in a fast increase of build-up areas, which was not followed by the low population growth (Carvalho, 2003) and led to large housing stock surplus, which contributed to the emergence of the 'housing bubble' and to the outbreak of the crisis.

During the implementation of the PDM Plans, individual interests overlapped the collective interests and corruption and illegal urbanization frequently occurred, both before and after the LBOTU Law (Oliveira, 2008). Moreover, the structures of local governance, which are responsible for the implementation of the plans, faced (and still face) difficulties in articulating political and technical points of view as well in the integration of different planning sectors, such as land use, housing, mobility, rehabilitation or environmental protection (Mourão, 2012). When the first generation of these plans ended, among its main advantages was the fact that the plans provided greater knowledge on the territory and of the legal constraints for its occupation, allowing a better use of natural resources available in the territory. However, the main disadvantages and negative impacts of these plans was the creation of a surplus of urban areas and the consequent dispersal of human settlements and buildings construction (Carvalho, 2003). Concerning the surplus of urban land, the analysis of sixteen different PDM in 2003 showed the creation of large urban areas twelve times larger than the expected increase of housing needs

(idem). Taking this into consideration, it could be summed up that the first generation of municipal plans responded to the housing and accessibility needs and exceeded them, creating territorial conditions which are not external to the outbreak of the financial and economic crisis in Portugal.

2.2 1998: The Ground basis Law (LBPOTU)

The contribution of urban planning and territorial management activities on importing the international crisis to Portugal is significant, and is interconnected with the antecedents of the planning system in Portugal. For that reason it is here approached an important moment of the evolution of the planning system, that due its delay and limitations can also be related to the outbreak of the financial and economic crisis in Portugal in 2008.

The Ground Basis Law on Territorial Planning and Urbanism (PP, 1998) resulted from a long process of evolution of the instruments of urban planning and territorial management in Portugal. This process began in the 30s of the XX century with the creation of the first planning instruments. The Ground Basis Law of 1998 introduced a new framework for the spatial planning in Portugal; however, it found a territory with dispersed and unregulated settlements and infrastructures, developed as a result of the lack of efficient housing and land policies. In 1998 democratic Portugal was still a rather recent reality and territorial governance had still weak human resources (Domingues, 2006).

According to LBOTU, a Municipal Master Plan establishes the territorial development strategy, the municipal policy on spatial planning and urbanism and other urban policies. It integrates and articulates instruments of territorial management of national and regional level with the ones of municipal level. It establishes also the model of spatial organization of the municipal territory (MEPAT, 1999, Article 84). However, even though all municipalities have prepared a PDM since 2003, these plans have often not reflected the territorial strategy of local development (Costa, 2008) since these strategies are generally tied to a municipal electoral mandate, lasting only for four years, a much shorter time than the 20 years' time covered by the PDM.

Other limitations are pointed to these plans: "The current figure of PDM is limited to the definition of the dominant uses without ensuring the formalization of the fundamental structures of the landscape, both in terms of ecological sustainability, both in terms of a structure built to

ensure the testimony of the past in the construction of future" (translated) (Magalhães, 2008, 113). Such structuring limitations persist partly in the process of reviewing these plans, as do the limitations regarding the interaction with housing policies, urban transport or energy demand (Mourão, 2012).

The experience of implementing LBOTU, and in particular of implementing the PDM, showed difficulties in applying measures contrary to the prevailing notion of 'quality of life' among the local communities, and also among decision makers. In fact, plans were almost always 'non-grateful' instruments or were perceived as obstacles that needed to be overcome (Oliveira, 2008). For this reason, public participation was progressively recognized as a way to overcome the divergence between administration, spatial and urban planners and private agents, as well as to legitimize the role of planning. Indeed, public participation found a wider space in the plans of the second generation (Crespo, 2008), allowing citizens and organizations to express their points of view at the municipalities, during the time of the plans elaboration.

2.3 1998-2008: The second generation of Municipal Plans

As mentioned, a survey focusing on the first Municipal Master Plans evidenced that the areas of urban expansion, predicted by the Plans, did not correspond to the demographic and economic dynamics of each municipality. Thus, the effective urbanization of the urban land predicted on the plans was very low (Carvalho, 2003) and many of these areas remained expecting land use changes that never occurred. This situation, in combination with other factors, created an 'unsustainable housing bubble' fed by the growing financial real estate sector. This fact was addressed in several PDM revisions (*second generation plans*) where urban areas shrank, while the environmental protection of natural resources gained greater importance, in particularly through the Municipal Ecological Structures (EEM) (Magalhães, 2008). These new Municipal Ecological Structures, integrated on the PDM revisions, aimed to manage ecological non-built spaces as collective active resources and not as reserves (as the ecological national reserve or the agricultural national reserve were in the past). However, most of the second generation plans were only finished after the outburst of the international crisis of 2008, facing difficulties in implementing such new Municipal Ecological Structures, due to the lack of financial resources for any kind of territorial intervention.

Achievements such as the theoretical definition of the Municipal Ecological Structures and the regulatory tendency to 'tighten' the urban limits derived from environmental economic purposes (Magalhães, 2008; Portas, 2008) but were also facilitated by the conditions offered by the decrease of the real state sector, in the context of the crisis.

In the second generation plans, due to the introduction of the Strategic Environment Assessment (SEA) imposed to Portugal by the EU (Partidário, 2007; DGOTDU, 2008), the environmental risks were considered in the instruments of local land management. However, with regard to the use of non-renewable energy, climate change and dependence on fossil fuels, SEA is insufficient to introduce more ecological aspects into the Municipal Planning or to contribute to mitigate the effects of the crisis. Thus, public transport, mobility, modal share of road space, energy efficiency of buildings and urban services are second plane issues in most of the Municipal Master Plans. Such issues would be important to help territories and cities to adapt to the post-crisis conditions, when energy costs get a heavier impact on the financial management of municipal territories and of families.

Trying to slowdown the building-up of rural areas, the second generation of PDM Plans proposed, in general and in theory, polycentric territorial models in favour of the rationalization of land use and of the conservation or reactivation of the productive and landscape potential (Mourão, 2012). But in their strategic aims, these Plans were often overtaken by other sectorial Planning instruments of national level, as the Plans from the roads and logistic sector. This situation was aggravated by the fact that the PDM revision were lasting often more than 10 years long, having a low capacity to respond fast to political changes (Portas, 2008; Costa, 2008).

If some of the revised Plans invested in the biophysical values of the territory, safeguarding nature, agriculture and forest, other invested simultaneously in the allocation of land to large scale touristic and road logistic activities, remaining permissive on what concerns the illegal urbanization and the construction of heavy infra-structures on high environmental value areas. These plans were pushed by the urgency of reversing the tendencies of unemployment growth and loss of population, already signs from the coming crisis. Indeed, tourism, logistic and housing were, in general, the dominant fields of investment and allocation of municipal land use in Portugal, prior and after the outbreak of the financial crisis (Mourão, 2012).

After the ‘housing bubble’ the ‘tourism bubble’ started equally to inflate, pressed either by municipal planning or by higher level strategic planning, following the national goal of promoting Portugal as a competitive tourism destination. However, territorial development strategies based on tourism and road logistic are questionable, because the tourism suffers from the impacts of coastal erosion, of urban centres congestion and gentrification, while the utilisation of road logistics declines because trade flows slow down. Such Planning options, however, have already left infrastructures on the ground, as well as planning instruments which still persist today.

3. Urban planning and impacts related to the financial and economic crisis

After a brief portrait to the global challenge of the sustainable cities, the present section analyses the Portuguese context. Moreover, it analyses the impacts caused by urban development, urban planning and territorial management activities on the 2008 crisis outbreak (both negative and positive impacts). Finally, it indicates some alternatives for the current planning and territorial and urban activities concerning to ‘low carbon territories’ and ‘low carbon cities’.

3.1 The challenge of sustainable cities

The so called *urban revolution* (Lefebvre, 1970) has led to a critical phase of widespread and fragmented urbanization. Thus, cities as agglomerations started facing a ‘crisis’ long ago, with the increase and generalization of accessibility lead by the industrial revolution and capitalism. During the accelerated economic growth from 1980 to 2000, with low price energetic resources, accessibility became widespread and cities and territories got in conflict. Therefore, it is possible to verify that the occurrence of crisis was pushed by a change of life imposed by society itself. The financial crises emerged as a consequence of such process, as prices oscillations occurred associated to the access to energetic resources. As recalled by Naredo (2003) and Cuchí et al. (2010) that is also the case of the environmental crisis, which reflect in most cases a consequence of an urbanism crisis, and later on a financial crisis. For example, with the recent financial and economic crisis, the problematic of suburbanization has dominated for the last three decades the urbanization agendas, contradicting traditional polycentric territorial systems, and feeding

Splintering Urbanism (Graham & Marvin, 2001) as well as debates on sustainable urban form (Talen, 2011; Marat-Mendes, 2002).

The debate of compact urbanization versus sprawl, and its inherent impacts on the city's sustainability is not new (see, for example, Frey 1999; Jenks et al., 1996; Urban Task Force, 1999; William et al., 2000). Moreover, the implications of the urban form of our cities in the environment have greatly emphasized the issue of the sustainable city, while finding strong support, for example, within the European Union (Marat-Mendes & Scoffham, 2000). This situation is even more evident since the publication of the Urban Task Force by Lord Rogers of the Riverside in 1999 (Urban Task Force, 1999), which has had also repercussions in Portugal (see, for example, Portas et. al, 2003, 2011). This finds also agreement with Echenique et al. (2012) who argues that in recent years the paradigm of urban planning has been to promote the compact city paradigm as a reaction against the sprawl, induced by the newer universal use of private automobiles. However, as argued by Echenique et al. (2012) there is no clear evidence that such compact urban model induces greater environmental, economic and social effects, or more sustainable cities. Attention is paid to the economic and social costs of the process of urban compaction, which needs to be better understood and considered in future cost-benefit analyses, as it is being done in Portugal by Carvalho (2013).

Finally, these authors do conclude that there is not a clearly superior spatial urban form solution in terms of sustainability. Moreover, the changes in lifestyles and the associated population growth have a far greater impact on the natural environment and resources than attributed to spatial urban form (Marat-Mendes, 2013). Therefore, one should consider greater meaning for the consequences of the social and economic costs that the current financial crisis might have produced in terms of changes of lifestyles. These changes must be main elements of analysis in any urban policy.

The relationship between urban form solutions, urban planning and their implications on the environmental problems seems still an open discussion. Nevertheless, if one accepts that changes of lifestyles are crucial to the achievement of sustainability and that sustainability is an important social goal (WCED, 1987), the study of the relationships between lifestyles, population growth, urban form and the impacts of these factors on the natural environment seem to be an urgent task to be followed by urban planning.

3.2 Impacts from urban development and planning and from the crisis in Portugal

After the financial crisis, worsening the impacts of unsustainable urban development and planning, many urbanized territories became isolated, segregated or neglected (Graham & Marvin, 2001). Overall accessibility increased sprawl, energy demand and consumption, environmental contamination and climate change (Stern, 2007), supported by 'high carbon' urban policies and planning. In Portugal these worldwide tendencies could also be observed. The global model of urban networks growing without limits, in name of financial interests relating infrastructures (roads, water, waste and energy) and real estate investments influenced 'high carbon' land use and urban planning. Additionally, the specific situation of Portugal was characterized by a recent democracy and by a large presence of 'illegal urbanism' (Oliveira, 2008).

On a short term, the model of urbanism growing without limits brought advantages, while satisfying housing and accessibility needs (Nunes da Silva, 2008) in a country that had still shortages at these areas. At the end of the XX century the growing middle class required a broader housing offer and the rural hinterland required still mobility infrastructures. Therefore, this 'high carbon' urban development model brought relevant social impacts, which were initially seen as positive (Portas et al., 2003).

During the economic growth of 1980-2000, the offer of urban land and of new roads all over the country, in face of low price of fuels, weakened the relations of cities with their local territories in favour of supra local and supra national territories, at the aegis of globalization. The increased supply of housing, due to unregulated conversion of rural land into urban land, was parallel to the public policy of high accessibility infrastructures. In such policy it was not the logic of planning the territory that presided the decisions (Nunes da Silva, 2008) and as consequence in the 90s new patterns of population distribution emerged: families working in Lisbon could live in Municipalities far way, driving daily hundreds of kilometres on highways. Portugal's (sub)urbanization of the last two decades reduced the potential of a polycentric urban system, and not only fed '*Splintering Urbanism*' and highways (Domingues, 2006), but also increased energetic demand and external dependency (Campos & Mourão, 2012). In the years prior to the economic crisis, however, several impacts from urban development started to be perceived as negative in the long term (Domingues, 2006).

On one hand, Portuguese cities faced the impacts of the pre-crisis urban development, based on 'high carbon' trends (1988-2008) which, together with global drivers, triggered the crisis in the country; on the other hand, such cities are exposed today to the impacts of the crisis. In these cities and territories, the impacts of the crisis aggravate the negative impacts of the unsustainable urban development, since they evidence the inadequacy of several infra-structures: highways and mass housing have no users in many places of the country, exceeding needs and representing a management cost with no economic return.

Among the negative impacts of urban development and urban planning which contributed to the crisis were: urban sprawl, leading to the emptying of urban centres and their degradation; credit dependence, leading to the insolvency of municipalities and families; oversized investment in motorway and logistics and private concession of infrastructures, neglecting environmental and affecting social values; excessive conversion of rural land into urban land, leading to the undervaluation of the country side, with few of its potential being used (Mourão, 2012).

Later on, the financial crisis added further negative impacts: the breakdown of the employment, the insolvency of families and the increased levels of poverty, the rising of 'ghost neighbourhoods', the privatization of urban services with prejudice to the State, and the weakening of institutional structures responsible for territorial management (Portas, 2008).

Although the crisis brought devastating impacts for territories and citizens, from the point of view of planning, some changes with regard to territorial development patterns can be identified as positive impacts of the crisis, since they allow the rethinking of the former planning and management practices. Examples of such impacts are the slowdown of the civil construction sector and reduction of its pressure over the governance structures, the reduction of the oversized role of the real estate sector, the changing of mobility and housing patterns to patterns spatially more concentrated, the reactivation of traditional urbanity based on agglomeration, the rising of resource-efficiency, the reoccupation of public space, together with a broader institutional space for public participation (Crespo, 2008).

3.3 Low Carbon Territories and Cities.

As a reaction to 'high carbon' urban policies, specialists point out the importance of resource-efficient urban policies for "prosperity without growth" (Jackson, 2009) and for the reactivation of urbanity based on agglomeration, conscientious that planning led, in the last two decades,

together with economic and social trends, to urban centers degradation, to urban sprawl on non-renewable rural soil, to an oversized investment in motorways, accompanied by an undervaluation of rural land and agriculture.

In terms of resource-efficiency, urban and territorial development alternatives are needed and environmental and energy concerns are a driver for planning such alternatives in Portugal and in Europe. In a time when planning is under pressure to better respond to the sustainability agenda, which has been imposed at an international level since the publication of the Brundtland Report in 1987 and has been committed throughout several agreements and charts (consider, for example, the International Kyoto Agreement from 1997, or the European Water Directive from 2000), attention has been called for revision on the urban planning models and the available planning tools and methodologies to better achieve the signed commitments. In consequence, there is an ongoing debate on the integration of the necessary actions to achieve more sustainable development in the field of urban planning, and on how planning must change in order to develop a city and a territory, as expressions of a society, based on a sustainable economic model. As already argued by Cuchí et al. (2010) this debate is only taking place now because there is a social recognition of the environmental impacts, caused by the industrial productive system that is still in operation. The continuous waste dump generated by the productive and consumer systems generates environmental impacts, therefore the above authors argue for new planning methodological approaches that take into account tools that allow monitoring the material flows that operate within the productive system and their relationship with sustainability.

One alternative proposal is to explore the relationship between the urban material dynamics and sustainability as the elementary tool to approach territorial and urban planning. Cuchí et al. (2010) understands this as a useful vision on sustainable and urban development. An example of alternative proposal introduced by these authors regards the recovering of water and the productive functions of the territory into the planning agenda. Urban material dynamics represent the main tool for the recognition of the role of the urban space and of support to the potential of urban planning towards sustainability. These are the tools that can consider Greenfields as an opportunity where, step by step, a new methodological approach towards urban Planning based on the urban material analysis can emerge, spreading the ecological regeneration from the green spaces to the entire city. Green strategies can start on the green fields, but they should finish on

the 'grey' infrastructure of the city. In this sense, the acceptance of the urban material dynamics as a crucial factor to guarantee the Planning sustainability might transform the overall objective of the urban planning. In that sense, at the international level (Newmann, 2006; Cuchí et al., 2010) and also in Portugal (Pinho et al., 2013) research on urbanism has identified the study of the energy-carbon flow, among other flows of the *urban metabolism*, as a relevant field of research to achieve a more ecological urbanization. Several authors define *urban metabolism* as the group of material flows, which enter and leave a certain urban system to enable its activity. Thus, studies on social or urban metabolism use frequently material flow accounting as it has been also done for Lisbon (Niza et al., 2009). 'Low carbon cities' are understood as urban systems, which demand less fossil fuels and produce less carbon emissions, thus mitigating climate change (Stern, 2007). 'Low carbon cities' should correspond to spatial scenarios of low fossil fuels consumption, envisioning scarcity or internalization of environmental and climate change costs. Although still few 'low carbon cities' exist in reality, territorial and urban administrations all over Europe are committed to the 'low carbon goal' (e.g. *Covenant of Mayors* in JRC, 2009).

The theme of 'low carbon development' entered slowly in some Portuguese public institutions, in particular through the work of the Environment National Agency (APA), responsible for the application of the Kyoto Protocol and for the delivery of reports to the International Panel for Climate Change (IPCC). Some Portuguese authors have researched on 'low carbon buildings and cities' in Portugal in terms of climate change mitigation (Fernandes, 2009), of bioclimatic urban design and sustainable building principles (Mourão & Pedro, 2012) or in terms of the management of low carbon cities and territories (Pinho, 2009; 2013), approaching directly the need and the strategies to reduce energy demand and consumption of urban areas and therefore, to reduce CO₂ emissions. A route for Low Carbon Economy until 2050 (APA, 2012) and a strategy about climate change adaptation (PCM, 2010) have been developed at an institutional level. A new version of a national plan for climate change is also in elaboration (PNAC 2020). However, 'low carbon cities' approaches in Portugal are still limited, partially due to the fact that the importance of climate change adaptation for vulnerable cities and territories has been increasing and overcrossing the concerns with climate change mitigation (Santos et al., 2002). Portuguese academic research shows that the characterization of carbon emissions from an urban system on the basis of nationally and locally produced data, although complex and demanding

specific information (Cuchí et al., 2009; Mourão, 2012), enables to portrait and restrict carbon emissions of urban origin (buildings, mobility and sanitation emissions, considering delocalized emissions). This quantitative knowledge, although still incomplete, can help to identify options on territorial and urban form transformations, and to develop a balance between ‘high carbon’ and ‘low carbon urbanization’, particularly relevant for post-crisis urban development.

‘Urban Carbon Balance’ can be relevant for ecological territorial and urban form regulation aiming higher resilience to the current crisis, but it is not incorporated yet in an operative territorial and urban form regulation method in Portugal. Indeed, traditional instruments of urban planning and territorial management can address neither energy urban demand nor urban carbon emissions. Two main reasons for this limitation were identified by Mourão (2012): i) the regulation of carbon emissions at the municipality or city level demands methodologies and domains of information that are not always available or workable for urban planning; ii) traditional planning relying on zoning fails to address key drivers of urban emissivity, such as mobility, sprawl or degradation and emptying of urban centres. Research applied to Portuguese municipalities showed also that urban planning and territorial management addressing energy urban demand and urban carbon emissions, aiming an higher resilience to the current crisis, should follow certain principles. These include:

- i. Polycentric concentration of settlements, refurbishing existing infrastructure and buildings, defining preconditions to allow urban transformations;
- ii. Structuring low-emission mobility channels, integrating alternative forms of mobility and public transport, and anchoring this structure to the settlements;
- iii. Safeguarding open spaces for water and waste ecological management, biodiversity and food provision, there controlling soil permeability.

4. Conclusions

This chapter aimed to discuss the role that urban development, urban planning and territorial management activities, along two decades, have played on the evolution and outbreak of the financial and economical global crisis in Portugal. In return, it also aimed to address the impacts that this crisis has on urban development, urban planning and territorial management in this country.

The assumption that the recent developments in urban planning, territorial management and urbanization in Portugal were motivated by drivers that also lead to the financial and economic crisis, as the oversized real estate sector, was verified. It was shown that the crisis is strongly interconnected with urbanization processes as well with permissive urban planning and territorial management activities.

It is possible to conclude that planning evolution in Portugal in the last decades was significant. However, it is also possible to identify a time lag between this evolution and the evolution of the urban dynamics, since the moment of higher urban dynamics has preceded the availability of the Ground Basis Law on Territorial Planning and Urbanism legislation, and of the arrival of conditions for its accomplishment. This fact contributed to the outbreak of the crisis.

Suffering from the inefficiency in the implementation of plans and their rules, planning have had little control over its consequences in the past. Moreover, the aims of planning were short term oriented and the long term environmental and economic impacts on energy demand, mobility patterns and Greenfields conservation have not been properly considered.

The delay in the legislation of urban planning and of environmental impact assessment, together with the inefficiency in planning accomplishment, exposed even more the Portuguese urbanized territories to the drivers and to the effects of the financial crisis. For example, urban areas remain depending on the automobile and are vulnerable to fossil fuels prices rise, environmental contamination, climate change effects, as well as to the sudden change of mobility patterns and housing needs, connected to the change of employment conditions deriving from the crisis. These are impacts of the crisis with which planning has to deal, while facing the financial restrictions for territorial intervention also brought by the crisis.

During the second generation of Municipal Plans, the tendency to reduce the expansion of urban areas showed a positive development, to whom the crisis is also related. However, some of these plans still remain permissive on what concerns the construction in areas with high environmental value and do not face yet the challenge of sustainable mobility, ecological construction or of consideration of social and economic costs of life style changes, which happened as a result of the crisis. In this line it should be noted that, as a result of the reduced pressure by the real estate sector, there has been also unfortunately a lack of pressure to conclude the revisions of the Municipal Plans and to implement its ecological structures. In consequence, many of the second generation plans are in 'stand-by', leaving municipalities without strategies to face the crisis.

It was argued at this chapter that to face the consequences of unsustainable urban development in Portugal, aggravated by the crisis, planning practice should use tools and methodological approaches that incorporate the urban material dynamics, valuating and protecting endogenous resources, as for example, water and energy, and assuring to territories a higher resilience to crisis scenarios. Climate change mitigation compromises play an important role for such innovation and, although the debate on sustainable urban form keeps going, there is already agreement about the importance of considering the lifestyle changes together with the territorial and urban form analysis by the elaboration of strategies for 'low carbon territorial development'.

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