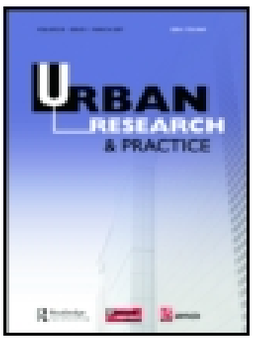

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Empty urbanism: the bursting of the Spanish housing bubble

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The depth of the Spanish housing crisis manifests itself in the collapse of construction activity and in the amount of housing and land stocks. The geography of the crisis shows its widespread nature, and the intensity of the previous bubble explains spatial differences. Resulting from this collapse are some problematic areas of 'empty urbanism'. An enormous land bubble, emerging from the peculiar Spanish urban development model, was a key factor in the impacts – caused by the crisis – on the territory and land-use plans. The crisis has demonstrated the unsustainability of this and the urgency of change in the existing land-use plans.

Keywords: Spain; housing bubble burst; land bubble; land stocks; empty urbanism; land-use plans

1. Introduction

The crisis triggered in the global economy after the sub-prime mortgage problem in the United States in the summer of 2007 cut off the easy, abundant and cheap bank financing to the real estate sector. This resulted in a sudden burst of the housing bubble that had been growing in Spain and other European countries. In these countries, the crisis derived from the bursting of their housing bubbles has superimposed on the international economic and financial crisis.

Spain represents a particular case in the context of a chain of housing bubbles. The Spanish expansive cycle was far superior and longer than the rest of the European Union, because Spain had developed, on a much higher scale, the economic model based on the real estate sector (García Montalvo 2009; Naredo 2010; López and Rodriguez 2011, 3). Between 2002 and 2007, Spain built more houses than Germany and France together (Naredo 2011, 51).

Such a big Spanish housing bubble can be explained by the economic and demographic context. It can also be explained by peculiar social and cultural factors, especially the marked preference to own rather (77.8% in 2013) than to rent and the common custom of second-home ownership (36.2% of families). Also, a neoliberal political context was very favourable to the unlimited growth; this context includes the change of urban regulations making it easier to increase the land supply and an urban praxis of subversion of public land-use plans (Burriel 2008, 2011; Fernández Tabales and Cruz 2013).

The Spanish model of urban development planning carried out during the bubble was based on an unlimited housing and land supply, with an overwhelming predominance of low-density residential areas, dispersed in the territory, and with oversized infrastructure and facilities (Naredo 2011).

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The bursting of this big housing bubble worsened the effects of the international economic and financial crisis in Spain due to the massive weight that the real estate sector had reached in the GDP, in indirect and direct employment, in household and corporate debt and in the balance sheets of financial institutions.

The economic consequences of the current Spanish housing crisis (García Montalvo 2008, 2009, 2010; Miguel 2009; Rodríguez López 2009a; Rodríguez López 2009b), the work-related aspects (Rocha and Aragón 2012; Méndez 2013) and the social consequences, such as the wave of evictions caused by mortgage defaults (Naredo 2009; García 2010; Etxezarreta et al. 2012; Méndez, Abad, and Plaza 2014), have been studied extensively.

The aim of this paper is to analyse the territorial impact of the bursting of the Spanish housing bubble (2007–2013) and its consequences for land-use plans. The studies of these issues of the current Spanish housing crisis are still very scarce.

In particular, the paper aims to demonstrate the key role that the enormous land bubble accompanying the housing construction bubble in Spain has had on the territorial and municipal land-use plans impacts caused by the crisis and the importance that this land bubble still holds today. With the crisis, this land bubble has given rise to a huge urban land stock in different phases of development; the land stock, along with the large amount of unsold new housing stock, has generated some peculiar and problematic urban spaces, which we have called 'empty urbanism'.

Land bubble and land stock have been analysed little, possibly due to the lack of data at a higher than municipal level, both for the *Comunidades Autónomas* (Regions) and for Spain as a whole. Quantification of the land stock for all of the *Comunidades Autónomas* and for a broadly representative sample of the municipalities and its estimation for all of Spain is one of the main contributions.

It thereby helps to show the tight relationship between land-use planning and the housing crisis. This link is quite marked in Spain because the reclassification of rural land as 'land for development' ('suelo urbanizable' in Spanish) in municipal land-use plans automatically leads to rights and duties of the owners and a significant increase in its legal value as well as an expectation of higher capital gains (Fernández 2011, 81-84; Burriel 2011, 238-239).

In this line, the crisis has revealed the unsustainability of existing municipal land-use plans, among other reasons, for the persistence of the land bubble. The urgency for change is explained because these plans continue to respond to the urban model that produced the land bubble, which remains latent in them.

2. The dimensions and geography of the Spanish housing crisis

In this first section, we examine the data of the current Spanish housing crisis that will be of great importance for the territorial consequences and land-use plans later highlighted. A geography of the crisis is carried out in order to show that, despite the depth of the crisis in most of the Spanish provinces, there are significant territorial differences which appear to be quite linked to the intensity of the previous bubble.

2.1. The collapse of construction activity

With the bursting of the Spanish housing bubble, residential construction activity has plunged in just five years to historically unknown minimum levels: 35,711 housing starts in 2013 barely reached 4.7% of those started in 2006. This figure is not only far inferior to figures before the housing bubble, but also the lowest since 1963, when the first official statistics were

Table 1. Construction activity in Spain (2006–2013).

Year	Housing Starts	Housing Completions
2006	762,540	658,510
2007	617,350	647,179
2008	328,490	632,218
2009	159,286	424,459
2010	123,616	276,883
2011	86,238	179,351
2012	51,735	133,451
2013	35,711	60,289

Source: Ministerio de Fomento, by Eugenio Burriel.

recorded. In 1963, nearly five times more residential dwellings were started than in 2013. In the two previous housing slumps in Spain (1975–1984 and 1990–1995) the maximum difference between boom and crisis never exceeded 50% (Rodríguez López 2006).

Besides its intensity, the decline has been dramatic. The crisis started at the end of 2007 and housing starts fell 65% in just one year and a half, to fall another 51% in 2009. Between 2010 and 2013, an intense rate of decline was maintained (Table 1).

Intensity and rate of decline have been determined by 'non-subsidised housing', comprising nearly 90% of all housing starts in 2006. 'Subsidised housing',[1] largely depending on political decisions, did not begin to fall until several years after the onset of the housing crisis. Many regional governments maintained their investment in subsidised housing because of the inertia of the plans underway or a deliberate policy in the face of the economic crisis. This explains that 'subsidised housing' came to signify half of the housing starts in Spain in 2009 and 2010. As the crisis deepened, however, regional government budgets were affected. In 2011, 'subsidised housing' also plummeted until nearly becoming irrelevant in 2013, scarcely 6489 subsidised residential dwellings throughout Spain, 6.6% of those started in 2006.

Statistics regarding 'housing completions' (Ministerio de Fomento 2014) show a setback that is similar in rate and intensity to housing starts but with a two-year delay, which is the average length of housing construction (Table 1). The inertia of the bubble – and also the fact that at the onset many developers carried on with their projects thinking that the crisis, as others before it, would not last long – explains why a number of housing completions would not start to decline until 2009. After that, there was a rapid steady decline of roughly 30% annually until plummeting 55% in 2013. The 60,289 housing completions in 2013 comprised only 9% of those completed in 2006.

The comparison of housing starts in each province in 2011 with housing starts in 2006 enables verification of both the widespread nature of the crisis and the abrupt drop in real estate production in nearly the entire country.[2] In 47 of the 50 Spanish provinces, the index of the decline in housing starts between 2006 and 2011 (expressed as an index of 100 = 2006) is less than 28, and in 25 of these provinces (half of the Spanish provinces), this index is less than 12.

The biggest drops (index 2006–2011 $\leq$6) are seen in the provinces of Castellón, Las Palmas, Tarragona, Murcia, Málaga, Almería, Alicante, Girona and Santa Cruz de Tenerife – nearly all the Mediterranean façade and the Canary Islands. They are, apart from the Balearic Islands, the provinces with the greatest tourism development in the country, joining the internal and external demand for seasonal residences (Figure 1).

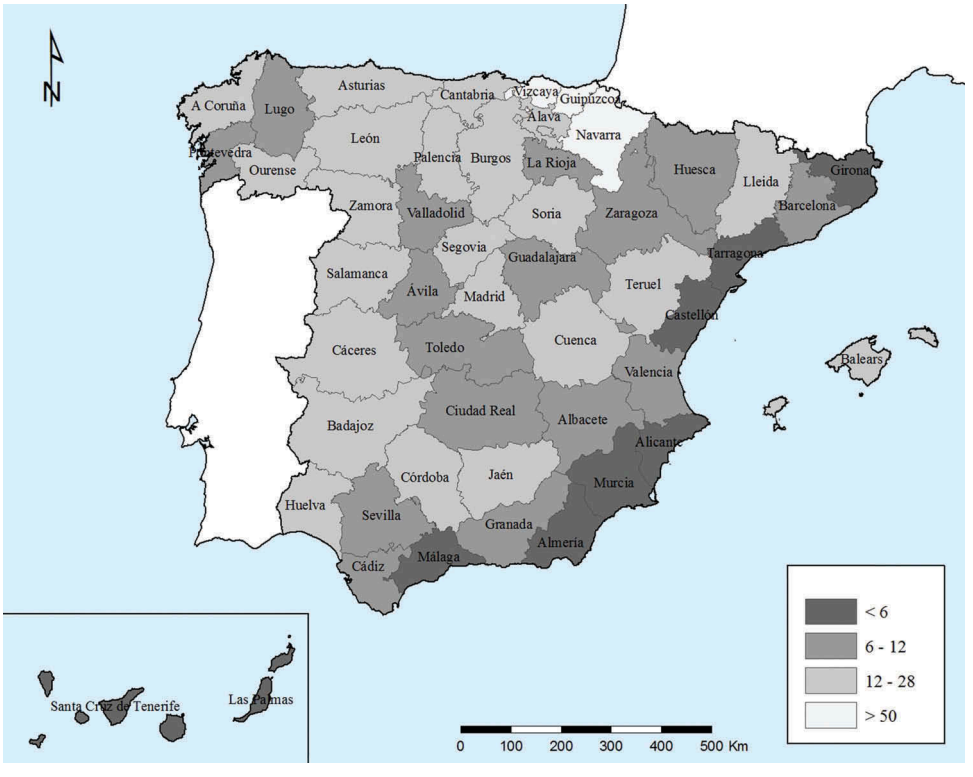

Figure 1. The housing starts decline between 2006 and 2011 by provinces (expressed as an index of 100 = 2006).
Source: Ministerio de Fomento, by Eugenio Burriel.

The decline is somewhat less, yet very intense (index 6–12), in inland provinces linked to the sprawling areas of Madrid (Ciudad Real, Toledo, Guadalajara, Ávila) and Bilbao (La Rioja) and the Mediterranean coast provinces not included in the group showing the greatest decline. This same decline is observed in provinces with significant mountain tourism (Huesca) or with important urban areas (Sevilla, Zaragoza and Valladolid).

With a noticeable decline (index 12–28), but above the average in Spain (index 11.3), are all the remaining inland provinces, as well as the northern coast of Galicia, Asturias and Cantabria.

The only provinces to escape are Guipúzcoa and Vizcaya in the Basque Country and, to a lesser degree, Navarra, whose indices were 85, 79 and 54, respectively, far less than all other provinces.

This map of the crisis is almost an exact replica of the map of the bubble in which the most significant growth in real estate activity corresponded to the Mediterranean coast, especially the provinces of Castellón, Murcia, Almería and the sprawling areas of Madrid, in particular the provinces of Toledo and Guadalajara. In contrast, the bubble was much less intense in Guipúzcoa, Vizcaya and Navarra (Burriel 2011, 233–235).

The tight correspondence between the geography of the crisis and the previous bubble is confirmed with the correlation coefficient at the provincial level between the intensity

index of the crisis and the bubble index, with an inverse relation of R = −0.671; the greater the housing starts index during the bubble (1997–2006) the sharper its decline in the subsequent crisis (2006–2013).

2.2. *A large stock of unsold new housing*

Between 2004 and 2007, when the bubble reached its peak, unsold new housing stock nearly quadrupled because of the excess supply over demand for replacement housing, the tourism sector and even above speculative demand (Fuentes 2009, 15).

The bursting of the housing bubble gave rise to an immediate sharp drop in demand. Nevertheless, housing stock continued to grow even further in 2008 and 2009 when many housing starts from the final years of the bubble, precisely the most expansive, were completed. In 2009 the housing stock expanded to more than 1.2 million residential dwellings, six times higher than 2004, stabilising in 2011 to roughly 1.3 million (Table 2).[3]

Furthermore, many residential dwellings purchased during the bubble for purely speculative reasons have entered the market during the crisis because their buyers need to get rid of them (Fuentes 2009). Added to this are the residential dwellings that were sold and are now in the hands of financial entities for mortgage default, plus the large number of second-hand housing. Thus, many authors raise the current stock to roughly 2.3 million (Vergés 2011, 56; RR de Acuña & Asociados 2013, 11). The logical consequence is the ongoing drop in housing prices. The largest annual drop occurred in 2012 (Rodríguez López 2013) and only has started to pick-up clearly and without setbacks in the first quarter of 2015 (Instituto Nacional de Estadística (INE) 2015).

It is also important to consider the number of residential dwellings today that have voluntarily been taken off the market due to a sharp decline in prices. They will be back on the market again once there are signs of recovery or the owners can no longer hold off selling.

This vast housing stock will need time to be absorbed even if demand is recovered – at least 6 years according to conservative estimates (RR de Acuña & Asociados 2013, 20) – thus setting up a difficult scenario for the Spanish housing sector.

In 2011 the provinces that had a higher relative indicator of unsold new housing stock (% stock/total number of housing) are four provinces on the Mediterranean coast (Almería, Castellón Murcia, Alicante), three in the sprawling areas of Madrid (Toledo, Ciudad Real) and Bilbao (La Rioja), and Lérida owing to the tourist attraction of the

Table 2. Unsold new housing stock in Spain (2004–2012).

Year	Housing stock	Annual growth rate (in %)
2004	201,543	
2005	389,543	93.3
2006	564,935	45.0
2007	739,915	31.0
2008	1,075,561	45.4
2009	1,221,573	13.6
2010	1,279,213	4.7
2011	1,320,287	3.2
2012	1,324,144	0.3

Source: Rodríguez López (2013), by Eugenio Burriel.

Figure 2. The stock of unsold new housing in relation to the total number of housing (in %) by provinces in 2011.
Source: Ministerio de Fomento, by Eugenio Burriel.

Pyrenees mountains. In contrast, lower stocks of unsold new housing are located in the three Basque Country provinces (Guipúzcoa, Vizcaya and Álava), in Navarra and in the two Extremadura provinces (Cáceres and Badajoz) (Figure 2).

The geography of housing stocks also shows the tight territorial link between the intensity of the bubble and the importance of the current crisis. This link is confirmed by the correlation coefficient between the provincial indicators of the intensity of the bubble and the current significance of unsold housing stock, with a direct relation of R = 0.572.

2.3. The Spanish land bubble and a huge land stock

The Spanish bubble was not only a housing construction bubble. Between 1998 and 2006 an enormous residential land bubble was also generated; many municipal land-use plans reclassified millions of square metres of rural land as 'land for development' ('suelo urbanizable' in Spanish) (Burriel 2009b, 38-50). Some of these plans with an excessive supply of land were approved even after the crisis had started (Burriel 2009b, 41; Vinuesa and Martín 2013, 62).

This land bubble was precisely the substantial base of the speculation business during the housing bubble (Burriel 2011, 239). Capital gains resulting from the reclassification of

'land that is not to be developed' ('suelo no urbanizable' in Spanish) to 'land for development' was enormous; at times during the bubble, the previous value went up 500 times (Naredo 2011, 48; Fernández 2005, 2011, 83).

This residential land bubble is present throughout Spain, although its intensity has remarkable spatial contrasts. The territories with the highest indicators of land bubble correspond with coastal tourist areas and with sprawling metropolitan areas. In contrast, the least developed land bubble is situated in inland areas and in the heart of large metropolitan areas such as Valencia, Barcelona or Madrid, which are already densely inhabited (Burriel 2014, 116–119).

The size of the bubble is enormous not only in small homogeneous areas but also in entire regions. Thus, in the Valencia Region, the 'land for development' ('suelo urbanizable') in the existing municipal land-use plans in 2012 nearly doubled the current urban area; in other words, this would permit as much urban expansion in just 15 years as throughout history 'from Roman times to today' (Fernández 2011, 92). Even in the Basque Country, the region with the smallest land bubble, the increase in urban land foreseen in the existing municipal land-use plans is 30%.

The sharp drop in construction activity after the bubble burst, described previously, led to a nearly total standstill of development of land stock reclassified by land-use plans during the land bubble. This explains the existence today of a huge land stock.

'Land stock' or 'vacant land' is considered to be land classified in urban planning as 'land for development' ('suelo urbanizable' in Spanish) or as 'developed land' ('suelo urbano' in Spanish) which has not completed the process of urban development. These days they can be in two very different situations. Most is only 'planned' land, i.e. legally entitled to urban development, but, in fact, no development has taken place and thus remains rural. However, a large part of this land stock started undergoing development but has been left half-finished because of the crisis. This land has been transformed in 'urbanised land' ('suelo urbanizado' in Spanish), i.e. land provided with the necessary and costly infrastructure to be built and developed. However, no or few planned residential dwellings have been constructed there.

There are no direct data on the residential land stock for the whole of Spain and *Comunidades Autónomas* (Regions). But a complex and rigorous analysis of the indirect information available, statistical and cartographic, has enabled quantification, quite accurately, of the dimensions of the residential land stock in significant areas of the territory: two regions, the Basque Country and the Valencia Region, which respectively represent the lowest and highest level of the bubble; and a group of 2159 Spanish municipalities which make up a very representative sample due to number, territorial and demographic importance, territorial variety and population size (data collected by the *Servicio de Información Urbana* – SIU, Urban Information Service – of the Ministerio de Fomento).[4]

In the three cases, the area occupied by residential land stock is very important: 52,000 hectares in the Valencia Region, 4500 hectares in the Basque Country and 142,000 hectares in 2159 SIU municipalities. In these three cases, the stock represents between 65% and 85% of areas potentially subject to urban development in municipal land-use plans. Still pending from the crisis is the development of more than two-thirds of the potential land use of existing plans.

Based on a projection of these partial data, residential land stock in Spain has been quantified to be between 250,000 and 290,000 hectares in 2012. It is a rough overall estimate, but hardly overestimated.[5] In the lower range of our estimate, the amount of residential land stock in Spain is very important, even admitting that part of this stock may

be in practice outside the market. This land stock will not be able to be developed in many years, even if the housing demand is soon recovered.

The residential land stock that has been transformed in 'urbanised land' with no or few of the planned residential dwellings having been constructed has only been able to be quantified in the Valencia Region (roughly 8500 hectares) and in 2159 SIU municipalities (25,000 hectares) in 2012. Based on data from the Valencia Region and SIU, it has been estimated that, in 2012, unbuilt 'urbanised land' stock was between 42,000 and 49,000 hectares throughout Spain. It can be affirmed that between 15% and 20% of the planned residential land is now 'urbanised land', provided with the costly urban infrastructure, but without building residential dwellings.

Urbanised residential land stock is present throughout the Valencia Region, even in small, inland municipalities. However, most of this stock is located in coastal areas of the Alicante and Castellón provinces and in the sprawling areas of the city of Valencia, adding up to 70% of the total regional stock, in a clear correspondence with the intensity of the previous land bubble.

While not an objective of this paper, it is noteworthy to mention that the land bubble also occurred in industrial land and currently there is also significant industrial land stock. For example, in the Valencia Region there were 6060 hectares of industrial 'urbanised land' in 2009 (Zornoza 2014, 327).

3. 'Empty urbanism': the territorial impact of the bursting of the housing bubble

The territorial consequence of the large unsold new housing stock and the huge land stock has been the proliferation of some peculiar spaces, which we have called 'empty urbanism'.

From a greater to lesser urban development process, when that process was suddenly paralysed by the bubble burst, we distinguish three types of 'empty' urban spaces: 'ghost towns', developed areas but empty of inhabitants; 'urbanised deserts', urbanised areas but empty of housing; and 'captive land', planned urban land but empty of urban development and even abandoned agricultural activity. Each one of these spaces has generated different territorial, economic and social problems.

3.1. 'Ghost towns'

The immense stock of unsold new housing has given rise to the fact that many urban areas developed in the years of the bubble have become desolate, lifeless urban areas, authentic 'ghost towns'. In these areas the urban planning process has finished, but the majority of the houses are unsold or unoccupied; therefore, very few people live there.

It is not possible to quantify the area taken up by these developed areas without inhabitants or economic activity. However, the territorial importance can immediately be deduced from the immense unsold housing stock mentioned previously. This situation can be observed all over Spain, such as in the Castilla-La Mancha sprawling areas of Madrid, the Valencia Region, Murcia, Aragon or Galicia (Abril 2011).

These 'ghost towns' create a serious problem for the residents who live there. In addition to the social or psychological problems stemming from the inherent contradiction of empty towns, they are residential areas with serious deficiencies in the quality of life. Low population sets the stage for lack of basic public services (schools, health facilities, welfare, culture, sports, etc.) and scattered locations in the territory lead to poor access to public services located in the population centre of the municipality (Vinuesa and Martín

2013, 70). Low population also results in scarce private services. Forced mobility is widespread and private transportation is a necessity since there is no or low-frequency public transport.

For local governments, these 'ghost towns' are economically unsustainable in both the medium and long term. The foreseeable and quick deterioration of urban infrastructure is already occurring (as noted in a *Levante* article, 24 February 2013, 23) and even empty residential dwellings are being looted (as noted in an *El País* article, 19 August 2014, 10). A far bigger issue is the financial drain brought about by the expensive maintenance costs of extensive urban infrastructure that is dispersed throughout the municipal territory. Given the scant residential population and lack of economic activity, there is insufficient municipal revenue (Abril 2011, 39).

On account of the massive existing housing stock and the scarce demand, which is to be expected due to the reduced geographic dynamism and the shortage of incomes, it will take much longer for these 'ghost towns' to reach normal occupation. On top of that is the issue regarding the lack of urban quality, favouring the choice of alternative residences in pre-existing population centres now with more affordable housing because of the crisis.

These problems are made worse when developers, due to bankruptcy or other reasons, have abandoned the urban project. The urban infrastructure remains unfinished in these residential areas and even some buildings are only cement skeletons. In these cases, the neighbours have no or few basic infrastructures such as paving, drainage, appropriate accesses, legal connection to electricity and water, etc. Since the urban infrastructure has not been completed, they do not have a municipal occupation permit so they cannot access essential public services. This entails considerable legal uncertainty and lowers housing values, which in turn makes selling even more difficult (see an excellent report on this topic on Spanish public television; RTVE 2014).

Municipal governments cannot solve this serious problem for two reasons: the legal impossibility to act while the legal situation is not clear and the skyrocketing costs to make up for the lack of provision of urban infrastructure in residential areas (Nel·lo 2011, 87-89). These situations were very common in Spain during the informal urban planning of the 1960s and 1970s (Ortega Valcárcel 1975; Del Canto 1983) and are now being replicated as a consequence of the impact that the crisis has had on the financial capacity of developers, owners and local governments.

Homeowners often find themselves 'stuck' in these low-quality 'ghost towns', unable to resolve shortcomings or escape.

3.2. *'Urbanised deserts'*

The abrupt halt in urban development of the enormous land bubble has led also to many peculiar urban areas, called 'urbanised deserts' in this paper. These are zones in which the urban development process has not been completed. These areas have been 'urbanised', i.e. provided with the necessary infrastructure to be built and developed; but they are 'deserts', vacant areas, because the dwellings have not been built yet.

Sometimes this is limited to layout and paved roads; yet often there are many areas which have been provided with a complete urban infrastructure: streets, pavements, service conduits (electricity, water, telephone, sewage), public lighting, traffic signs and even landscaping and street furniture (Figures 3 and 4).

These 'urbanised deserts' are the most expressive and offensive image of the absurdity of the land bubble and the territorial consequences of its burst. Millions of square metres of land were artificialised, i.e. transformed by eliminating their natural state, and will

Figure 3. An example of 'urbanised desert' in Sagunto (Valencia).
Source: Photograph by Eugenio Burriel, 19 September 2013.

remain unproductive without housing and population for many years. A huge investment has been made in the provision of this urban infrastructure.

These surprising and devastating areas are visible all over Spain to the mockery of the Spanish urban model development, responsible for the housing bubble and the crisis. Examples of 'urbanised deserts' can be seen in 202 of the 208 municipalities analysed in the report *Sectores Residenciales 2011* (Ministerio de Fomento 2013b); municipalities from all regions are included in this report, but it predominantly deals with urban areas.[6]

Logically, the 'urbanised deserts' have a greater presence where the bubble was more intense: the coastal tourist areas and the main sprawling metropolitan areas. For example, 4500 hectares in this situation in the coastal regions of Alicante and 3000 hectares in only five Costa del Sol municipalities in Malaga (Benahavis, Mijas, Estepona, Marbella and Benalmádena) have been recorded.

The extensive unbuilt 'urbanised' area in the municipality of Dos Hermanas in the vicinity of Seville serve as a good example for the metropolitan areas (Figure 5), as well as the five municipalities in the northern periphery of the metropolitan area of Valencia (El Puig, Puzol, Rafelbunyol, Sagunto, Canet and Gilet), all of which have a sector of this type, or the metropolitan sprawling of Madrid towards the NE to be explained later.

But they also appear in suburban areas of large inland cities with metropolitan areas that are less developed, such as Zaragoza, Valladolid or Pamplona. An example of this is the *Arco Sur* area in Zaragoza, with 435 hectares 'urbanised', where, in 2013, less than

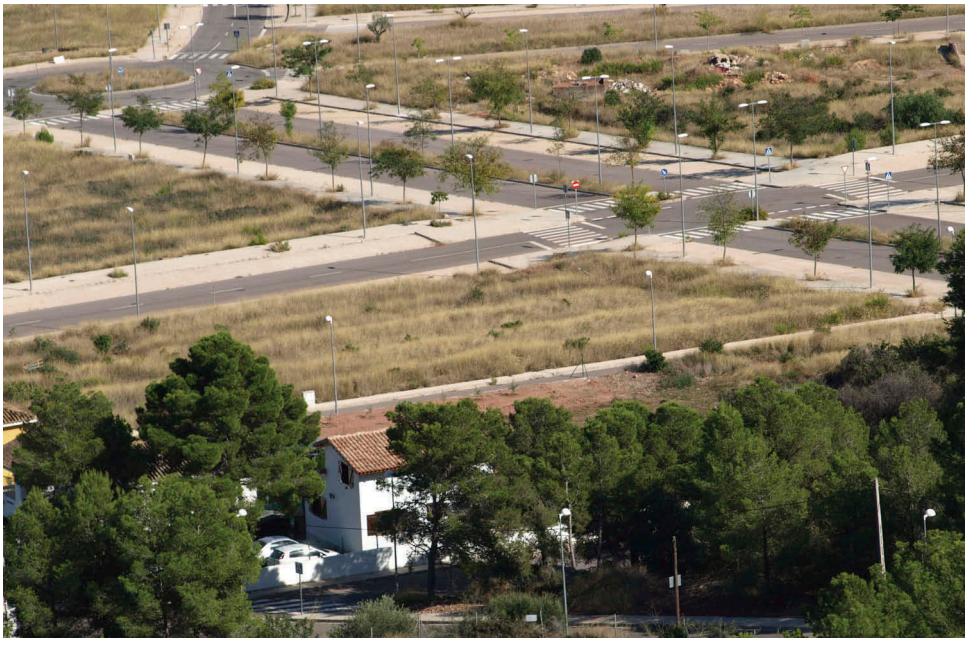

Figure 4. Streets, pavements with trees, streetlights, crosswalks, traffic lights, etc., in an area without residential dwellings; an 'urbanised desert' in Gilet (Valencia). (The dwelling in the forefront is of illegal origin from the 1970s).
Source: Photograph by Eugenio Burriel, 19 September 2013.

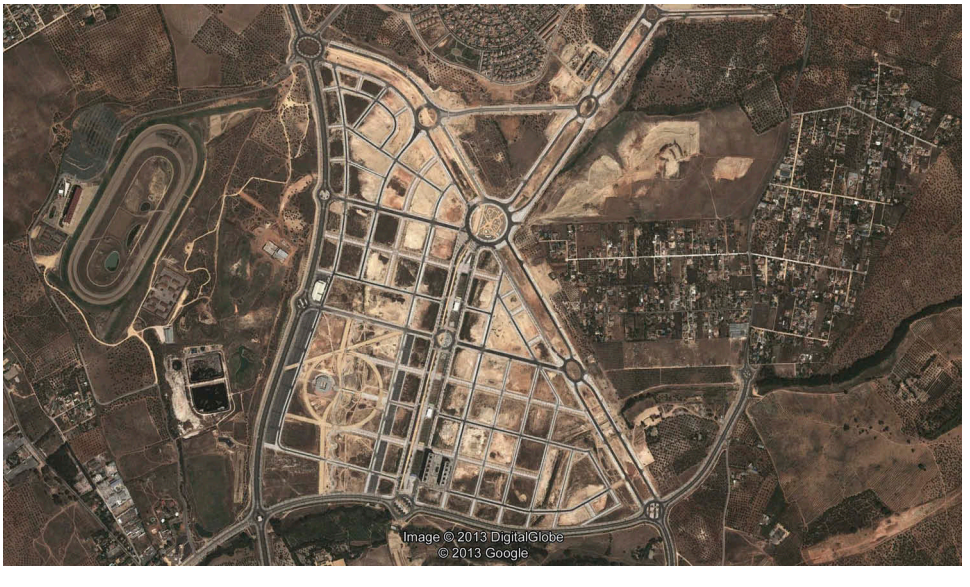

Figure 5. An example of an extensive 'urbanised desert' in the municipality of Dos Hermanas in sprawling area of Sevilla.
Source: Google Earth. Image from 13 September 2011, by Eugenio Burriel.

Figure 6. Extensive sectors of 'urbanised deserts' in the southern and eastern peripheries of Avila. Source: Google Earth. Image 27 October 2010, by Eugenio Burriel.

10% of the 21,000 planned residential dwellings were built. Five municipalities in the expansion area of Valladolid would have roughly 940 hectares in this situation.

Important areas of this type can be seen even in the provincial capitals of Extremadura, inland Andalucía, Castilla y León as well as Castilla-La Mancha, with little demographic and economic dynamism. Vast unbuilt 'urbanised' areas located to the south and east of the city of Avila would also be a good example (Figure 6).

Vivid examples of exorbitant growth, scattered locations with little territorial logic during the bubble, as well as examples of the 'ghost towns' and 'urbanised deserts' after the burst are the new residential areas of 'el corredor del Henares' and the vicinity of the Guadalajara high-speed train (AVE) station from Madrid to Barcelona. They are two adjacent areas, affected by the metropolitan sprawling of Madrid towards the NE.

In 'el corredor del Henares', five small municipalities have 445 hectares of residential 'urbanised land' stock that remain unbuilt. The locations – disperse and unrelated to the territorial structure (natural environment, population centres, roads, etc.) – only follow the economic and political interests in each municipality and not a logical territorial plan as a whole due to the lack of territorial supra-local planning (Figure 7).

In the vicinity of the Guadalajara AVE station, four new residential areas in the Yebes and Horches municipalities occupy 424 hectares provided with the necessary urban infrastructure; of which, just 22 hectares have been constructed and few dwellings are occupied. They are located far away from population centres and they are poorly connected with these centres (Figure 8).

From the environmental standpoint, we need to stress the absurd and practically irreversible waste of natural resource land that has resulted from this urban development

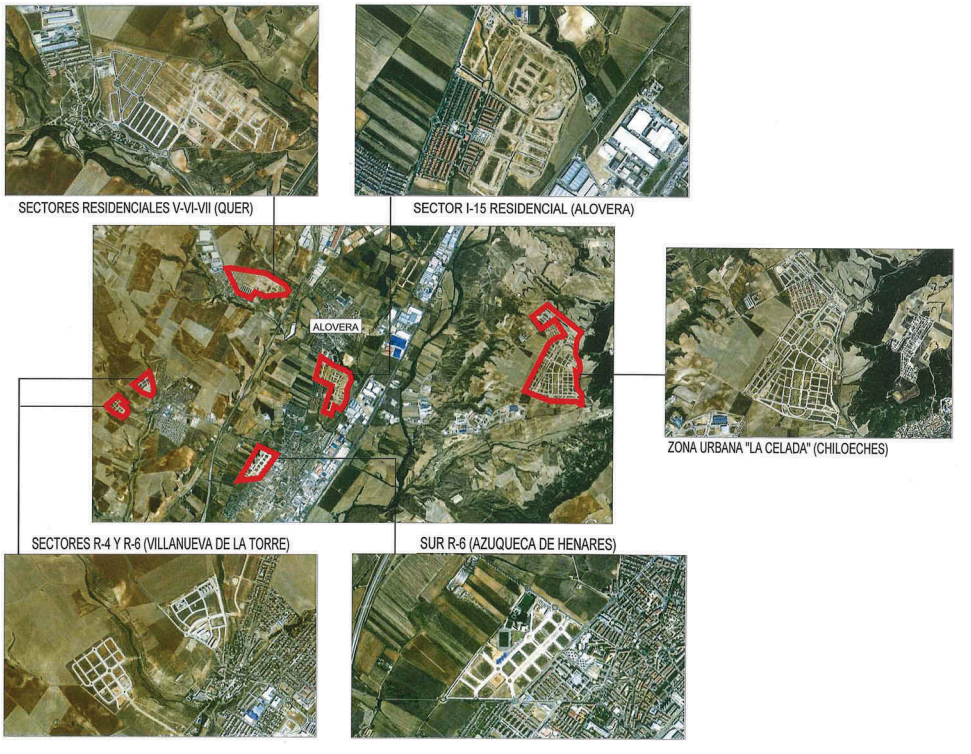

Figure 7. Some 'urbanised deserts' dispersed in five small municipalities of 'el corredor del Henares' (Guadalajara).
Source: Google Earth. Image 10 February 2009, by B. Marín, R. Zamorano and E. Burriel.

without housing. And from the economic point of view, 'urbanised deserts' also pose a heavy economic burden for local governments and landowners.

These landowners have made significant investments in development projects, which will not be able to be capitalised on for many years. In the meantime, as explained later, landowners have to bear the burden of a much higher property tax (Impuesto de Bienes Inmuebles, IBI in Spanish).

Local governments are having to pay for the maintenance of extensive urban areas without receiving sufficient taxes in exchange, given the absence of housing and economic activity; in addition, this costly urban infrastructure is going to have a rapid deterioration. Some municipalities have proposed not using lighting and closing the street traffic in these empty residential areas (e.g. in Sagunto, as noted in a *Levante* article, 19 January 2011, 20).

It should be highlighted that there are important consequences for the Spanish economy of the massive investment in urban infrastructure that will remain unproductive for years to come, given the vast unsold housing stock and expected lower demand. The average cost of this construction could be estimated at a minimum of 350,000 euros per hectare,[7] which would amount to roughly 15,000 euros invested in these unbuilt 'urbanised' areas throughout Spain. This enormous investment has taken away from savings or boosting other productive sectors and has decisively contributed to the colossal private debt and lack of liquidity of financial institutions, keys to the severe economic problems of today.

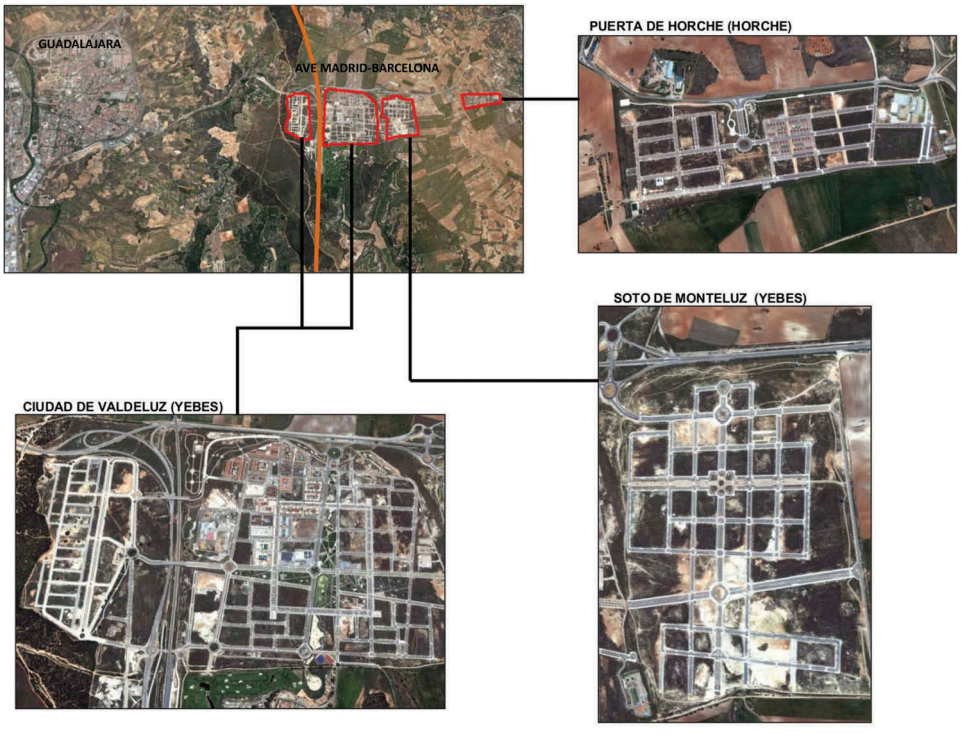

Figure 8. 'Urbanised deserts' and 'ghost towns' in the vicinity of the AVE high speed train station in Guadalajara.
Source: Google Earth. Image 10 February 2009, by B. Marín, R. Zamorano and E. Burriel.

3.3. 'Captive land'

These are very extensive rural areas in which the bubble land had produced their legal transformation as 'land for development'; but the 'physical transformation' of this land had not started when the bubble burst.

The enormous stock of residential land in existing municipal land-use plans will not be able to undergo development for years to come, not even if the housing demand were to regain pre-bubble levels, something that is unthinkable in the short and medium term.

This explains the state of abandonment of many agricultural plots, which had been productive land. This activity ceased on the expectations of huge capital gains stemming from the approval, or even the mere processing of land-use plans that classified them as 'land for development'. A look at the orthophotos from 2009 of the Valencia Region superimposing the layer of land-use planning (Generalitat Valenciana 2013) enables verification of the abandonment of many plots classified as 'land for development' in land-use plans that were even used to irrigate citrus crops, such as in many coastal areas of the province of Castellon. It seems logical that a similar situation has occurred in parts of Spain where the bubble and the housing crisis have been intense.

For landowners, this situation implies that it will be nearly impossible to recover revenue from agricultural activity after years of abandonment. It also implies a significant increase in costs due to the huge rise in levying property tax (IBI in Spanish): the IBI of agricultural 'land that is not to be developed' might increase 50 or 100 times when land-

use plans classify it as 'land for development', even if it has not undergone urban development. This was not a concern when there were high expectations of capital gains with immediate sales for urban development, pointed out previously. However, the total real estate paralysis has led many owners to ask local governments (for the first time in history) to reclassify their 'land for development' as 'land not to be developed' when faced with the perspective of many years of elevated urban IBI without the possibility of compensation of the capital gains for urban development. Claims against high IBI costs are ongoing (see, e.g. some articles in *El País* 28 June 2014 and in *Levante* 28 June and 30 June 2014). Following a sentence issued by the Supreme Court on 30 May 2014, the recent Law 13/2015 has established the inapplicability of the urban IBI to the 'land for development' without prospects of urban development.

This land, which will remain unproductive for years, is 'captive land' trapped between an agrarian past with difficult prospects of recovery and a dim future for urban development.

4. The urban planning consequences: the inadequacy of the existing land-use plans

The bursting of the housing bubble has demonstrated the inadequacy of existing municipal land-use plans. The maintenance of these plans without any substantial changes poses serious territorial and economic problems in the medium term. Small adjustments or leaving them to the market would not be enough. It is imperative to profoundly modify the existing municipal land-use plans.

4.1. Land-use plans with land for decades

The existing municipal land-use plans respond to the urban development model that produced the land bubble, which remains latent in them. The result is that the existing municipal land-use plans in Spain entail a building potential that is estimated to be at least 7.5 million residential dwellings.[8]

This would equal the housing needs in Spain for 23 years in the hypothesis, unthinkable in today's times, of a recovered demand of 325,000 dwellings/year (similar to housing starts in 1997, the first year of the bubble, and equivalent to an index of seven dwellings per thousand inhabitants). However, the expected demand after overcoming the crisis would be difficult to sustainably exceed 150,000 dwellings/year (as explained by an executive of an important real estate company in an *El País Negocios* article, 7 September 2014, 23); in this more realistic hypothesis, there would be residential land stock to attend to housing needs for 50 years.

It could be argued that most of this land stock is only 'planned', i.e. classified as 'land for development' in municipal land-use plans but with no urban development; thus, there would be no urgency for its exploitation and would not pose a real building potential. It cannot be ignored that legally this land is potentially subject to building in Spanish urban system – the only land that is – and can be developed at any time. Therefore, until changes are made in current land-use plans, this land stock has the potential to be developed in Spain and also gives rise to, as previously explained, a significant increase in its legal value as well as an expectation of higher capital gains.

Furthermore, as mentioned earlier, between 15% and 20% of this residential land stock corresponds to 'urbanised land', with an estimated building potential of at least 1.2 million residential dwellings, which would meet the demand in Spain for 8 years.

Therefore, this urbanised land is ready to be placed on the property market as soon as minimum favourable circumstances exist, which would give value to the large investment placed in them. Much more so since a significant part of this land is financed to the developers, estimated to be between 120,000 and 145,000 million euros (Fernández 2012; Martínez 2014), and now in the hands of financial entities that need to recover the majority of these assets as soon as possible.

However, we must also keep in mind that, as stated previously, there is a stock of 1.3 million unsold new housing on the market, plus second-hand homes and those in the hands of banks for foreclosures.

With this building potential it is obvious that existing municipal land-use plans will produce a new housing bubble or will need decades to be developed. In any case, they are jeopardising the future with estimates and characteristics that are already quite outdated.

4.2. *The impossibility of partial development of existing municipal land-use plans*

Most regional governments have chosen to maintain the existing land-use plans, claiming that the market can be trusted to regulate the supply and thus limit the development of disproportionate planning. However, this is not the case, not only because this rationality has been proven not to work, but also because the partial development of existing plans would also produce serious territorial problems.

First, most existing plans do not establish a required sequence for progressive, orderly procedures of various 'land for development' sectors. This lack of partial development scheduling of existing municipal land-use plans would result in great territorial dispersion and disorder. Local governments, overwhelmed by the need for revenue and employees, would set few limits to the scant number of urban development proposals that are submitted to them, whatever the location. This happened in the 1960s, with weak accommodating municipal power faced with the demands of developers.

Secondly, because existing land-use plans corresponding to exorbitant building development and planned demography set up huge road networks, parks, public services and facilities (*sistemas generales* –'general systems'– in the Spanish urban model), which would no longer be necessary. The few developed sectors would not be economically viable if they had to be in charge of some excessive 'general systems' (Ramírez Sánchez 2010, 22) in the case of partial development. In addition, they would be partial, incoherent and incomplete.

Thirdly, it would not be appropriate to continue developing land-use plans that are overwhelmingly disperse residential areas with low density. They are unsustainable from environmental and social standpoints (Herce and Magrinyá 2007) and, as previously noted, economically unfeasible.

4.3. *Economically unsustainable land-use plans*

The crisis has also demonstrated that it is impossible for municipalities to cope with financing the existing land-use plans, based on the model of urban development planning carried out during the bubble: an unlimited supply of low-density residential areas, dispersed in the territory and with oversized infrastructure and facilities.

The municipalities received many resources derived from real estate activity during the bubble; however, local governments forgot that there were uncommon revenues. In addition, urban development actions implied significant future commitments involving

fixed expenses for the municipalities, unaffordable with ordinary revenues, which, in addition, have been greatly reduced during the crisis.

This unlimited supply model forces municipal governments to face the maintenance costs of oversized new urban areas. But after the burst of housing bubble, these areas have not provided adequate revenue compensation due to the shortage of residents and activity (Vinuesa and Martín 2013, 70).

Moreover, more than two-thirds of the urban typology built during the bubble included detached and terraced houses in low-density dispersed residential areas. This model of urban development planning produces a clearly deficient fiscal balance for the municipal budget. The low-density residents in these urban areas pay municipal taxes similar to residents of a compact area even though public spending for maintenance and services is far superior in these low-density areas (Mur and Clusa 2011; Henry 2007).

In many municipalities located in sprawling metropolitan areas, this issue is made worse by the political power acquired by residents of the new residential areas. They present their own candidates for local elections, and their council members, although in the minority, can determine the political orientation of the municipal government; they almost always use their decision-making power to defend their biased territorial interest.

Another unaffordable expense for municipal treasuries comes from excessive public facilities generated by the heat of the real estate bubble: swimming pools, auditoriums, cultural halls, sporting complexes, residences or day centres for the elderly or disabled, etc. These were often the result of unreasonable decisions because their size and maintenance costs are disproportionate in relation to the sparse population in many municipalities. The current scarcity of municipal resources has led to unfinished facilities, the inability to operate, closings or price increases for their use. Public facilities subject to concession to the private sector are now being 'taken into public ownership' because the licensees renounce. They cannot afford the expenses since there are few inhabitants who would be potential users and whose incomes have been weakened with the crisis. The media have collected several examples of this problem (see, e.g. *El País*, 11 March 2013, 18; *Levante*, 2 June 2013, 16–17; *Levante*, 29 August 2013, 16).

4.4. The unavoidable need to change existing municipal land-use plans

So it is clear that it makes no sense to maintain the existing municipal land-use plans for at least three reasons: they have the capacity to meet the housing demand for several upcoming decades; it is not feasible to partially develop these plans; and they cannot be financially covered by the municipalities.

Seven years have passed since the bubble burst, and the Spanish urban development model that led to this situation has still not been reconsidered in depth (Concheiro 2014, 9) and municipal land-use plans have not been changed either. Some regional governments are reducing or not approving the most expansive proposals for new land-use plans in process or they have set up restrictive measures. But this is completely insufficient. They are only 'specific touch-up actions to reduce some "excessive" excesses' (Vinuesa and Martín 2013, 66).

This inaction is largely due to the fact that the competency of land-use planning does not depend on the State but rather on regions and municipalities. So if changes are to take place, decisions taken from several governments are required.

It is also because many regional and municipal governments continue thinking that the model is valid and the same land-use plans are in force, and, like other real estate industry

representatives, are waiting until the crisis (which they consider to be a passing crisis) is over (González Pérez 2010, 1598).

It is imperative to create new land-use plans that reflect a 'change of attitude in the philosophy of urban development of local and regional governments' (Vinuesa and Martín 2013, 67). The current lack of pressure for urban development allows adequate time for reflection on the new urban development model and subsequent approval of new plans. It is not within the scope of this paper to enter into debate on this new model; however, some interesting reflections and proposals have already been made (Fariña and Naredo 2010; Naredo 2011, 63–65).

In any case, while the new model is being defined, it is not possible to maintain without making significant changes to the current municipal land-use plans. In our opinion, these modifications should address the following basis guidelines:

- Regional governments must adopt and implement supra-local territorial guidelines based on a rigorous analysis of demographic and territorial dynamics. These guidelines would be the framework for municipalities when drawing up plans. A rationally organised territory is not possible with plans like the existing ones drawn up 'from the discretion of a purely local standpoint' of hundreds of municipalities (Vinuesa and Martín 2013, 71). Most regional governments either have deliberately not wanted to approve regional land-use plans (Burriel 2009a) or the plans that have been adopted are not constraining enough and hardly limit the municipal excesses or have not been later developed. The only *Comunidades Autónomas* that have rigorous land-use planning are Catalonia and the Basque Country, which today boast a less intense land bubble.
- A drastic reduction should proceed in the enormous supply of 'land for development' of these plans. The supply must suit the new conditions of demand while taking into account the huge land and housing stocks and the possibilities of making the most of current cities through development of vacant urban land. This reduction has not been addressed yet, apart from a few exceptions. In general, it has been limited to waiting for the most disproportionate urban planning projects to fizzle out because the developers abandon them, or the plans are cancelled because of judicial decisions.[9]

This reduction of the exceeded supply requires declassification of 'land for development', which is pendant on urban development (because of use, dispersion or location in important environmental areas, it makes no sense to maintain this land as expected assets) to 'land that is not to be developed' and even 'deurbanisation' when feasible.

Moreover, 'land for development', which has been decided to be maintained and thus subject to development in the medium to long term due to its urban predisposition, needs to be declassified and reconsidered as a special type of 'land not to be developed' – 'reserve land'. This implies not creating legal and urban planning rights or expectations and not generating accrual on property taxes (IBI) that overwhelm the owners.

- With this sharp reduction in the supply of land for development, more active housing rehabilitation policies as well as urban and social regeneration policies in deteriorated neighbourhoods need to be implemented. The Spanish Land Law 8/2007 established the preference for intervention in the consolidated areas of the cities. The Spanish Law 8/2013 for Rehabilitation, Regeneration and Urban

Renovation later have developed this preference, although some of its regulations we do not consider appropriate.

- In the land-use plans, it is necessary to include a required sequence for developing planned areas, giving priority to public interest and territorial rationality while focusing on previous processes for preferred land before adding other sectors to the urban development plan. This required sequence has already been implemented in several regional land laws, for example in the Valencia Urban Planning Law (LUV) art. 44.1b and 54.4; its enforcement, however, has not been rigorous.
- Rigour must be required in the *Informes de Sostenibilidad Económica* (Economic Sustainability Reports), binding with the Spanish Land Law 8/2007, which would guarantee a balance between revenue and expenditures that arise from urban development operations in public budgets. They are the ideal tools to resize urban planning operations by adapting them to the foreseen limited demands in the short and long term. These reports have scarcely been implemented because new urban operations have hardly been developed because of the crisis.
- It is important to redirect low-density urban planning proposals towards greater residential compactness, establishing minimum densities for the sake of environmental and economic sustainability, medium-density collective housing, or productive uses and tertiary generators of economic activity. Measures along these lines have already been taken in the Basque Country and Catalonia (Burriel 2014), as well as more recently in Navarra (regional Law 6/2009; see Ramírez Sánchez 2010).
- A far more accurate estimate is needed of public facilities that fit the demand, especially in small and medium municipalities, to avoid the situation that municipal budgets are unable to cope with, which is so prevalent today.

5. Conclusions

The analysis of the dimensions and territorial consequences of the current housing crisis reveals that it is not just another ordinary housing crisis that occurs periodically in Spain. It cannot be expected, as in previous crises, that the economic cycle will pass and continue doing the same as before. The bursting of the housing bubble has revealed the unsustainability of the urban development model carried out in Spain; it is a new situation that demands rethinking the existing urban planning model.

The land bubble that accompanied the construction house bubble has been decisive in the depth and consequences of this crisis in Spain. In the overall analysis, this key factor has been ignored or has not been given adequate importance.

This huge land bubble is a peculiarity of the boom and the Spanish crisis, linked with the uniqueness of the Spanish urban development system within the European context. In this system, speculating (achieving reclassification of rural land for development) is a bigger, faster business, with less risk and investment involved than promoting and building dwellings. This particular feature of the Spanish urban system, during the bubble politically boosted, created an excessive increase of the supply of land for development, which was the axis of the Spanish bubble.

As seen in this paper, the worst territorial consequences of the bubble burst have been generated by this huge land stock inherited from the land bubble. Furthermore, their economic consequences are heavily weighing down the exit of the crisis.

In addition, the Spanish urban development model that generated the housing and land bubble and the subsequent crisis is still present in existing municipal land-use plans (the

vast majority remain unchanged); this is a clear sign that the effects of land-use planning will linger in the long term. It is therefore urgent to modify these plans, for which some basic guidelines have been outlined. If they remain, a new housing bubble might be caused as soon as the economic cycle changes.

In this situation, it is difficult to believe that conservative sectors keep insisting that the basic problem of urban development in Spain is the limitation of the supply of 'land for development'. They continue to claim that it is necessary to 'liberalise' it, returning to the 'build anywhere' ('todo urbanizable' in Spanish) set forth in Law 6/98.[10] This is happening regardless of the current grave crisis and the huge land stock of land available for urban development in existing land-use plans and regardless of the fact that studies carried out in other countries have shown the lack of correlation between restricting the land supply and rising housing prices (Quigley and Rosenthal 2005).

Disclosure statement

No potential conflict of interest was reported by the author.

Notes

1. In Spain, 'subsidised housing' ('vivienda protegida' in Spanish) is promoted by public or private initiative. Conditions are regulated and the selling price and rent are restricted by law. Its developers have specific funding in better conditions than those of the market; and, to facilitate its acquisition for people with low and middle incomes, recipients have access to public financial aid (loan aid) and/or direct aid linked to their income level.
   'Non-subsidised housing' ('vivienda libre') in Spanish is housing whose conditions and prices are determined only by the free market.
2. In this analysis, we have used the provincial level because the regional level (Comunidades Autónomas) produces insignificant averages due to the big differences that exist among provinces in the regions with several provinces. The municipal level, which would have provided a more accurate picture of the territorial contrasts, is not feasible because of lack of available data.
3. In Spain, there are no precise data on the amount of the stock of unsold new housing completions. In this paper, estimated data by Rodríguez López are used (Rodríguez López 2013, 157), which includes all types of new housing and coincides with data from other researchers (Fuentes 2009, 2; García Montalvo 2010, 157).
4. In 2012, in the Basque Country, land stock has been estimated based on its statistic base *Udalplan* (Gobierno Vasco 2012). In the Valencia Region it has been based on the superimposing of cartography of the SIOSE 2009 with urban development plans available on the *Terrasit* website (Generalitat Valenciana 2013). In the SIU it has been based on urban development data; information has been provided personally by the Ministry of Public Works on many more municipalities that are listed on the SIU website (Ministerio de Fomento 2013a).
5. It does not seem to be an overestimation that only 208 Spanish municipalities which bring 2009 data together for residential land stock of 117,716 hectares (Ministerio de Fomento 2013b). Even considering that one-third of this stock would have been built until 2013, it would add 78,477 hectares of vacant land, which is 27–30% of the estimated stock in Spain.
6. The *Sectores Residenciales 2011* report chose, from the municipalities that the SIU provided data, those that had 'land for development' or vacant 'developed land' with a building capacity of at least 1000 residential dwellings of which less than 70% had been built (Ministerio de Fomento 2013b).
7. It is a conservative estimate. The average cost of the development, including overhead costs, financial expenses and profits, is 500,000 euros/hectare: here it has been reduced to 350,000 euros, considering that 50% of the 'urbanised deserts' would have partial development, sometimes only the layout and paving of streets because they were left unfinished due to

the crisis, or because they correspond to informal processes from the 1960s or empty urban areas.

8. For the calculation of potential building of land stock, an average low density of 35 dwellings per hectare is estimated, when without a doubt, urban development in the upcoming years will be far denser. Despite this, the 9.5 million resulting dwellings have been lowered 25%, considering that this would be the proportion of vacant land that will never be in the market for various reasons.
9. The courts, although with delays, are cancelling many massive urban development projects that represent the bubble in Valencia Region: *Rabassa* in Alicante, *Porchinos* in Ribarroja, *Barranquets* in Albaida, *Nou Mil·leni* in Catarroja and *Mundo Ilusión* in Oropesa and Cabanes.
10. In 2011 Cristóbal Montoro, the current Ministry of Finance for the PP government, followed this line as noted in a *Cinco Días* article 5 July 2011. More recently, in the National Commission of Competency (Comisión Nacional de la Competencia 2013) insists on this position. A critical analysis of this position can be read in Fernández (2013).

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