Depopulation and Public Spaces: The Case Study of Lisbon

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Abstract

Urban depopulation has been a growing phenomenon since the mid 20th century namely in developed countries of the northern hemisphere (Oswalt, 2008; Pallagst & Aber, 2009; Rink & Haase, Annegret; Bernt, Matthias; Grossmannn, 2012). Among the general drivers are the processes of de-industrialisation, peripherisation, post-socialism periods, suburbanisation and birth rates decline (Audirac, 2011, Fritsche et al., 2007; Hollander, 2009; Oswalt, 2008).

Depopulation is having profound impacts in the city's form and in it's livelihood including an increased social segregation followed by public and private disinvestment with consequences to the accessibility to education, health services and employment combined with an increased sense of insecurity, either perceived or real (Glock & Håussermann, 2004; Schetke & Haase, 2008). Other impacts include the rise of urban fragmentation and perforation, when demolitions are put forward (European Environmental Agency, 2009; Haase, Lautenbach, & Seppelt, 2010; Haase & Seppelt, 2008; Oswalt, 2008); spontaneous vegetation growth (Ryznar, 2001) and; a decrease on social creativity and innovation (Knudsen, Florida, Gates, & Stolarick, 2007).

Along with a contraction in the population size, there is the potential "*landscape expansion*" [1] inside the city with the increase of urban open-wild sites where biodiversity can growth exponentially and where some communities such as groups of adolescents (Ward Thompson, 2012), immigrants with community gardens (Bartlett, 2005; Rosol, 2005) or environmental activists and concerned residents (Kuhoutek & Kamleithner, 2003) occupy the space spontaneously.

[1] This is a metaphorical authorial expression meaning the opening of

This expansion can be capitalized in different ways. Either by endowing the city with more and better green infrastructure, with the known benefits for citizens wellbeing and to the cities' ecological balance, or by increasing cities' density and avoiding urban sprawl and the associated energy consumption. Although, the two previous perspectives are not necessarily opposites they can compete in the everyday political decisions. The inner cities of most cities in Europe are inherently denser being potential assets to the resolution of such potential conflict between greener and/or denser cities. However, precisely in these areas the abandonment has been more intense in the last decades. This paper intends to explore the role of public open spaces in the rekindle of inner European cities having as case study Lisbon city.

Keywords

Demographic Change, Urban Public Spaces, *Wildscapes*, Tradicional City

2. Depopulation and Public Spaces

2.1 Shrinking cities in the XX and XXI Century

Since 1900 until today the overall world population has been growing at an unprecedented rate putting an enormous pressure on the resources availability of the planet (Ayres, 2006; Heinberg, 2011). Although still a controversial thesis, according to Heinberg (2011), this pressure is the major pull factor for the economic crisis we are going through since September 2008. If this becomes a confirmed reality, we are not only in a downturn economic period but also in a stepping point for our society. The most recent United Nations surveys reinforce this idea, predicting that for the next 100 years the growth rate of the World population will slow down strongly compared to the twentieth century population progression. The average annual growth rate will reduce 47% if we compare the period between 1960/2000 and the high variant prediction for 2000/2100 (Nations, 2010). However, this deceleration will not happen homogeneously. The developed countries of the northern hemisphere will lead the phenomenon where the relative demographic weight is expected to have a 25% cut until 2050 compared to the world population (Goldstone, 2010).

Simultaneously, and since 1950, the number of cities with depopulation patterns has already started to be noticed, most intensely in many OCDE countries, namely in United States of America and Canada, several European countries and Japan. Phillip Oswald (2008) has tracked 350 cities worldwide suffering population declines, at least temporarily, between 1950 and 2000 (fig. 1).

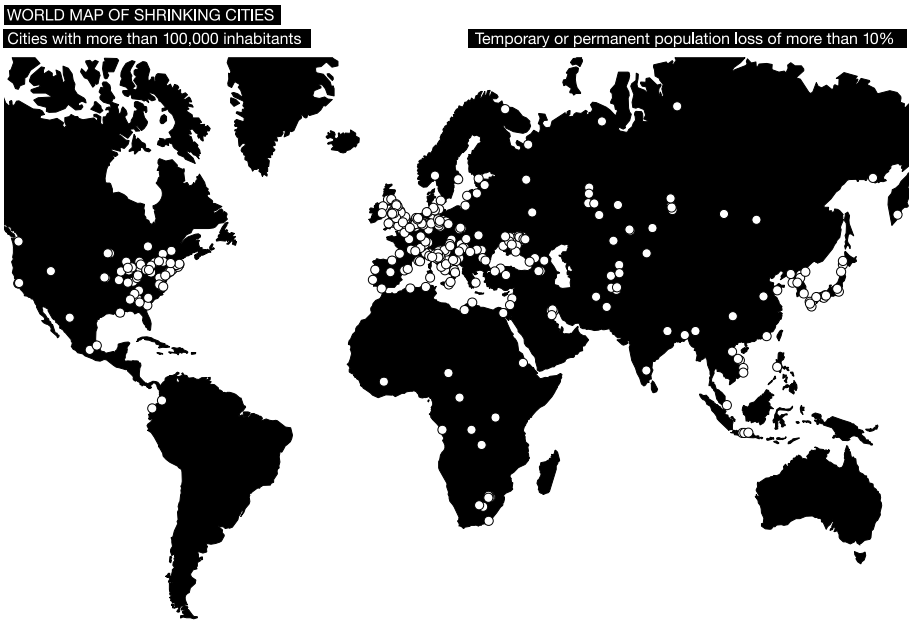


Fig. 1 . Shrinking Cities Worldwide 1950-2000 In: Oswalt, P., 2008. *Shrinking Cities* シュリンキング シティ. Berlin: Project Office Philipp Oswalt, pp. 3–28., pp.6. illus.

What was for sometime considered as an exception or as a transitional period, can no longer be dismissed. The first serious discussions and analyses on shrinking cities emerged during the 1980s with works such as “Urban Decline and the Future of American Cities” by Katherine Bradbury, et al (1982). Since then the interest on the topic has risen as well as the research production especially in the last decade.

Most authors investigating this problem, have adopted Wiechmann (2007) definition of a shrinking city: “*a densely populated urban area with a minimum population of 10,000 residents that has faced population losses in large parts for more than two years and is undergoing economic transformations with some symptoms of a structural crisis*.” (Wiechmann, 2007, p. 50).

But what are the factors that can trigger such a process?
Among the general drivers for this phenomenon are the processes of de-industrialisation, peripherisation and, reactions to post-socialism period (Audirac, Fol, & Martinez-Fernandez, 2011; Fritsche et al., 2007; Oswalt, 2008; Reckien & Martinez-Fernandez, 2011). It is important to have in mind that these drivers do not happen in isolation are often interrelated. Nevertheless, the categorization of the phenomenon is useful.

All of the three causes mentioned, act first by disestablishing the economic settledness of a city and consequently trigger a chain of mutually reinforcing events that lead to a cycle of decay (Fritsche et al., 2007). The first symptom is decline in the job market, unemployment and the consequent out-migration of young and qualified people to other countries or regions where the job availability is higher. With the migration of young working generations, the birth rates - which broadly have been drooping in all developed countries - droop even lower and cities become dominated by elder demographic groups.

A fourth driver is also considered by many other authors like Oswald (2008), Audirac et al. (2011), Hollander et al. (2009) and Bini et al., (2012)– suburbanisation. This inner and selective migration process will occur either when there is a demographic contraction, in other words, as a consequent of one of the three drivers already referred to, or when, even in an economic growth period, there is a demand for better housing conditions. In both situations inhabitants move to neighbourhoods on the suburbs either because they can afford to have a better house as in the case of Detroit (Ryznar, 2001), or because there is a social housing program that offers people houses in the suburbs as in the case of Genoa (Bini, 2011).

Therefore, even in cities where the numbers of inhabitants are diminishing considerably, the land consumption and the urban sprawl is still the prevalent action of land use change (European Environmental Agency, 2009; Kroll & Haase, 2010; Reckien & Martinez-Fernandez, 2011). Long-term tenements vacancies will increase and lead to infrastructure underuse - water, sewage, transports, education and health – largely in mostly in the most abandoned neighbourhoods (European Environmental Agency, 2009; Reckien & Martinez-Fernandez, 2011; Rink & Haase, Annegret; Bernt, Matthias; Grossmannn, 2012) In addition, this process has a considerable influence in the energetic costs of a city. According to the European

Environmental Agency (2009) data, there is an average increase of 31% in the energy bill of a not fully occupied building. Other problems of the same nature can happen at the city scale level: for example, the underused water supply and sewage systems can provoke challenges in terms of water quality and contamination; the transport systems will tend to become inefficient provoking an increased use of private cars which constrains the access of the more deprived population to social infrastructures, like schools and hospitals, as well as to jobs (EEA. 2009).

So, cities with abandonment problems face a new and unfamiliar state, characterised by social fugue and social segregation (Bini, 2011), vacancies, and oversupply of infrastructure (European Environmental Agency, 2009; Schetke & Haase, 2008). Authors like Allweil (2007) and Schatz (2010) defend that the appropriate planning attitude in these situations is to accept the decline instead of perpetuating growth oriented paradigms that assume the return of the lost population. The growth-oriented paradigms are the ones that perpetuate the land consumption pattern and cities' suburbanisation. However, not all decision makers have adopted these strategies.

When the problem is acknowledged, instead of ignored, one first response is to slowly recover the derelict buildings left by the absent population, in order to raise again the attractiveness of the sites. However, despite some considerable financial efforts of the public sector in many cities, when the depopulation rate is very high within short periods of time, is very rare for the public sector to have the financial capacity to do so and it becomes difficult to prevent a derelict image to come to light in the minds of city's dwellers and visitors. Moreover, when the number of abandoned small spaces starts to be highly significant, not only there is a clear unbalance of offer and demand in the housing market (Couch & Cocks, 2011; Rink & Haase, Annegret; Bernt, Matthias; Grossmannn, 2012) as also the health and safety risks and crime rates rise stronger (Loftin & McDowall, 1982). There are some examples of cities going through this process with no serious interventions either by lack of financial capacity or by refusal to accept the population decline as a reality, namely, Bytom and Makiivkca (Rink & Haase, Annegret; Bernt, Matthias; Grossmannn, 2012) both Eastern European cities.

As previously mentioned, the impacts on city life have driven public authorities in some other cities to adopt demolition as a solution. This decisive option, especially

when there is no foreseeable intention of future occupancy, can have severe impacts: perforation and fragmentation of the urban fabric, a rise on the numbers of brownfields and vacant lands (Haase et al., 2010), social disconnectedness, with the loss of competitiveness, creativity and innovation (Knudsen et al., 2007), and still, spontaneous vegetation growth (Ryznar, 2001) (fig.2).

The city is re-drawn backwards in a spontaneous and unplanned process. The number of open spaces increases exponentially (fig.1), however, the incorporation of these new 'bits of land' into the city life are, most of the times, very challenging. After demolition the Detroit Council did not have the means to rehabilitate the remnant land which remained in a desolated state (B. D. Ryan, 2008). And as Ryznar (2001) noted, the in net increase of vegetation in Detroit city is associated with less positive quality of life indicators according to the Anson indicators (1901) (fig. 2).

The case of Detroit is indeed one of the most well known cases of shrinking cites in the literature. Currently, not more than 20% of the population lives in the city centre, and between 1970 and 1990 not only half a million people abandoned the city as also 117.000 houses were demolished (Neill, 1995).The council not only proceeded to massive destructions of abandoned and derelict buildings in the core city choosing to invest in more attractive and peripheral areas.

The impacts have been socially, urbanely and environmentally sharp. As detected in other cities, there has been social segregation, of poorer, uneducated and unemployed populations with impacts on place attachment (Brown, 2003), on security and crime rates (Loftin & McDowall, 1982), and also on health wellbeing (Norman, Boyle, Exeter, Feng, & Popham, 2011; Terschüren et al., 2009).

The childhood mortality in the inner city of Detroit is twofold higher than the USA national average. The "hospital officials cite inadequate public transportation in a city of automobiles and freeways as an obstacle to necessary doctor's visit (Wilkerson, 1987, p.2). Moreover, studies as the ones of Rabito et al. (2007) seem to demonstrate a positive correlation between multiple demolitions for urban renewal and increased levels of lead in children's blood.

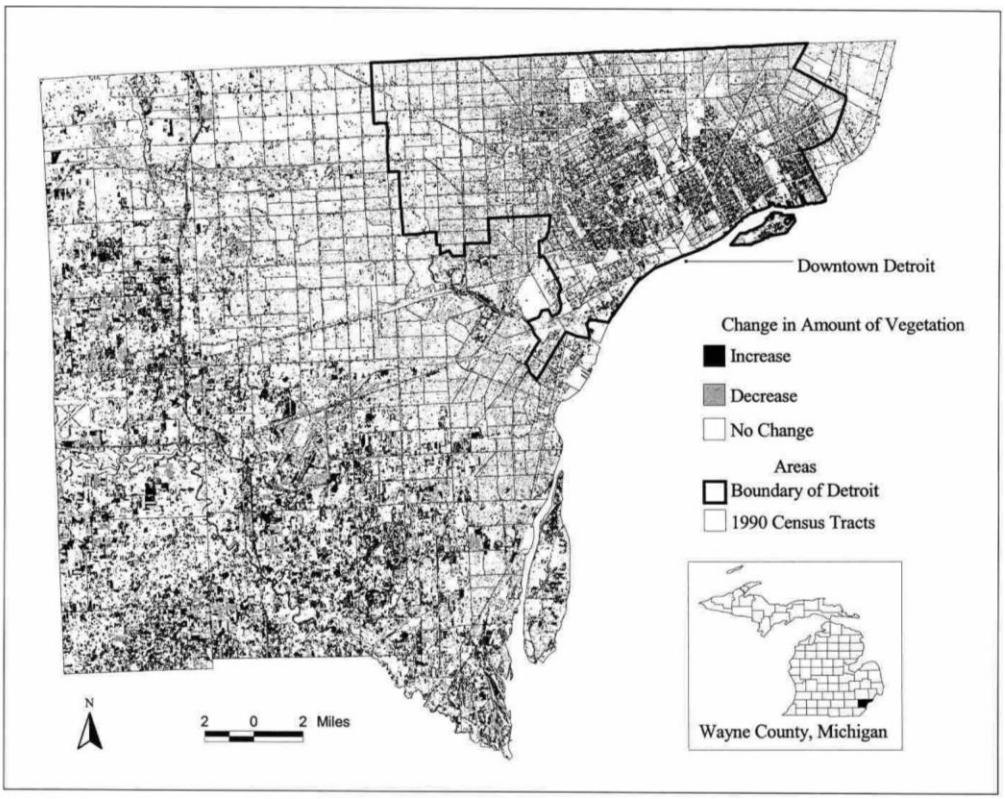


Fig. 2 . Landsat Vegetation Change Image for Wayne County, Michigan, 1975-1992 In: Ryznar, Rhonda M.; Wagner, T.W., 2001. Using Remotely Sensed Imagery to Detect Urban Change: Viewing Detroit from Space. American Planning Association Journal, 67(3), pp.331. illus.

The image of the city becomes increasingly negative and accordingly to the vicinity law new investment is less likely to happen (Kotler, 1993).[2]

Although Detroit is clearly one of the most iconic cases of shrinking cities there are other cities where demolitions were put forward, namely, in Liverpool (UK), Ivanovo (Russia) and Halle/Leipzig (Germany) (Oswald, 2007). However, there are

[2] According to the 'vicinity law' (own translation) that characterises the real state market; i.e., the value of a property is not only measured by its intrinsic qualities but also by what sits next to it; the negative image of a street, a neighbourhood or a district transforms the investment in rehabilitation very risky in the first stages, therefore, private owners tend to avoid such activity and prefer to wait for a public action. After that first investment, and if the results have proven to be positive, the private investors tend to start investing too (personal communication from Prof. João Carvalho das Neves, 18 April 2012)

significant differences in the impacts of the process on each of these cities as a consequence of different post-demolitions decisions.

Mainly due to a slow and steady outmigration, combined with urban regeneration and an economic restructuring, Liverpool as a whole reached now a stable situation. Although the city core has lost 175000 people only between 1971 and 2008, meaning 28% of its population, the decline period had already started in the 30's. This meant that, unlike Detroit, Liverpool policy makers had a longer adaptation period of seven decades to slowly adjust to a new reality. Their approach was two folded: on the one hand there was a financial effort to rehabilitate the city centre and on the other there was a dynamic control and prevention of urban sprawl (Rink & Haase, Annegret; Bernt, Matthias; Grossmannn, 2012) with the construction of a green belt (Merseyside Green Belt Local Plan) (Bini et al., 2012). The impacts of the phenomenon were less sharp and recent numbers indicate some stabilisation in the city centre where, in the last decade, there has been a reduction on vacant dwellings from 7,99% in 2000 to 5,76% in 2009 (Couch & Cocks, 2011).

Like in Liverpool and Detroit, also in Leipzig and Dresden the deindustrialisation process determined the economic decline of the city and a demographic downturn. However, both these German cities adopted a strategy of regulating fragmentation and vacancies using reduced public financial support and investing in public space and green infrastructure. The results have been positive and it was achieved the stabilization, and even an increase, on the population size (fig.3).

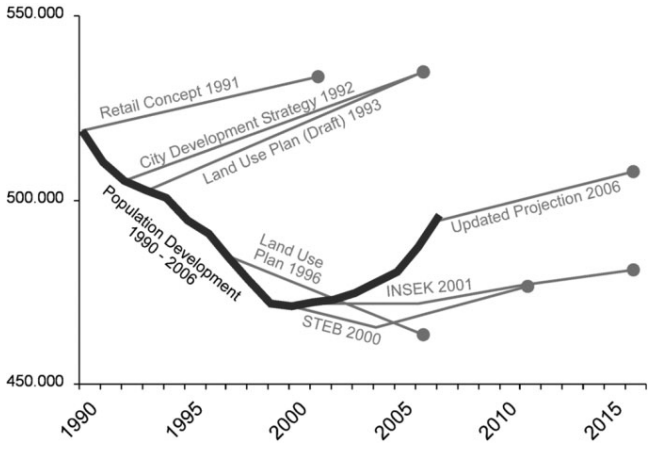


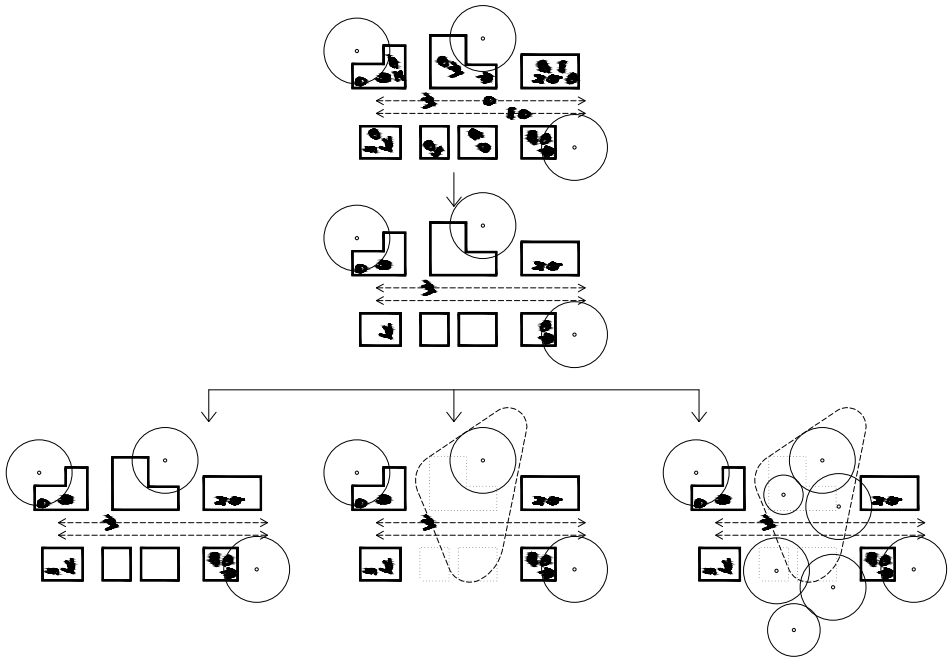
Fig. 3. Population development and prognoses in Dresden since 1990 (projected on the basis of the territorial status of the city in December 1999) In: Wiechmann, T. & Pallagst, K.M., 2012. Urban shrinkage in Germany and the USA: A Comparison of Transformation Patterns and Local Strategies. *International Journal of Urban and Regional Research*, 36(2), pp.261–280. Available at: http://doi.wiley.com/10.1111/j.1468-2427.2011.01095.x [Accessed July 29, 2012]., pp.270. illus.

In 1980, Dresden, a former industrial power, had 1000 ha of abandoned industrial land. A number of parks were designed and built. One of those parks is the Duisburg-Nord Landscape Park built between 1990 and 2002 and designed by Peter Latz (Reed, 2008). The conceptual importance of the design for this site is that it was not demolished and rebuilt, but the existent industrial structures were, more than incorporated, accepted as the structure of the design. The same type of exercise has been developed by James Corner from the *Field Operations* in the High Line project in New York, 2010. Both projects adopt a “co-option” attitude described by Tim Ingold as an adaptation of a pre-existence to a human purpose (Ingold, 2000). But there was not enough financial capacity to design and maintained the whole area. The authorities decided to proceed to a landscape recovery based on natural vegetation succession and, instead of a planning approach, the project was based on the “forester” figure – the person that nurtures, protects and knows the forest. Only small and targeted operations were constructed as, for example, pathways, safeguards against dangers and clearance of some areas for multiple uses. This new management concept has had many positive results. Not only is more cost efficient as also is highly attractive as a play space and as an environmental education space (Dettmar, 2005).

In Leipzig, there has also been an adaptation of vacant land into green structure and also in this city the demographic data stabilized. From 1933 until 1998 there has been a 40% reduction on the population and the vacant rate was at this point of 20% (Bontje, 2004). The council developed a plan that determines strategic areas to be developed into ecological corridors and others to be urbanely regenerated and densified. In this way when a private investor is interested in the redevelopment of a lot, the Council not only predetermines the areas where that regeneration can be developed but also demands the financial support for the recuperation of other areas to be incorporated in the strategic ecological structure for the whole city. This

approach has had positive effects and the population size has stabilized in the last decades (IAPS conference proceedings). However, a comparative study between two neighbourhoods in Leipzig, where demolitions took place recently, did not reach conclusive information whether demolitions had significant benefits to the quality of green infrastructure or not, although, it did have strong impacts on the citizens perceptions of space (Schetke & Haase, 2008).

Summarizing, there are three different general approaches to this problem: abandonment, demolition and rehabilitation (fig.4).



Abandonment I Bytom Demolition I Detroit

Rehabilitation I Leipzig, Dresden

Fig.4. Action Strategies after Population Declines

2.2 *Expanding Landscapes*: Urban Wildscapes vs. the Compact City

As a consequence of the Shrinking Cities phenomenon, researchers and practitioners are increasingly exploring the metaphorical idea of an expanding landscape or an expansionist nature inside the city (fig. 7). The thought that, in the

future, a city can “produce” more land inside itself might be considered as an opportunity, however, in quite different ways.

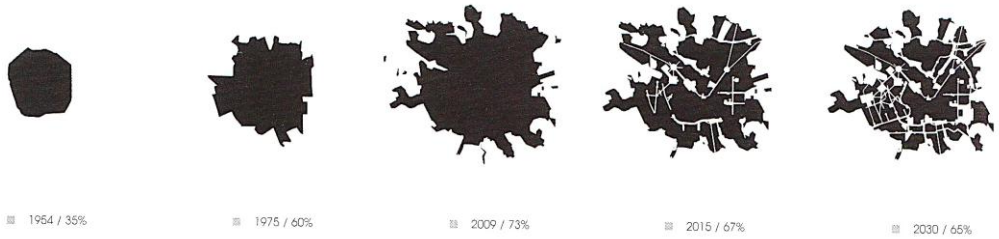


Fig. 7. Milan Development Plan 2010/2011 by Metrograma In Metrograma (2010). “Milan: The Dense City”. *The Plan: Urban Development* 47: 39-93.p. 79 Illust.

On the one hand, it can be seen as an opportunity to increase the proximity to natural spaces and to potentiate the benefits of a stronger green infrastructure to the city ecosystems and to citizens. Many studies indicate that the proximity to green spaces have considerable advantages not only to the water, air and materials fluxes in the city and to biodiversity, as well as to citizens physical and mental health (Ward Thompson, 1998). Although proximity has been proven to be the most important aspect to increase the use of green spaces (Ward Thompson, Aspinall, Bell, & Findlay, 2005) other aspects such as the cleanness and attractiveness are also crucial. So in the case of Detroit, although the potential proximity has risen significantly, the attractiveness of the space is very low and the benefits of the potential spaces not enjoyed. Also in Boston City, a recent study by Boston Metro Ecological Research and coordinated by Robert Ryan has demonstrated that, although the biodiversity in vacant lands and community gardens is generally the same, the use is much higher in community gardens (62%) compared with vacant lands (32%) (R. Ryan, 2012). However, in a different situation, a non-intervention choice has been the vehicle for the formation of valuable sites like the Nature-Park *Sudgelände* in Berlin. The *Sudgelände* Park is situated in an old railway station abandoned after the Second World War. The space was fenced and for decades the population forgot it. This fact permitted an undisturbed evolution of vegetation and a spontaneous fauna occupation. When in the 70’s, after 30 years of abandonment, some experts evaluated the site found out that it was one of the most ecologically diverse in the city of Berlin. Examples like these explain why there has been a raising interest in temporary occupations of vacant land, in community gardens, in garden guerrillas and other spontaneous movements. Community gardens, for instance, have been an important tool not only as occupation of vacant land as also

a very important tool for the integration of immigrant minorities in cities like Philadelphia (Bartlett, 2005).

On the other hand, it can also be seen as an opportunity to restraint urban sprawl by using vacant land to increase the city density reducing energy consumptions and carbon footprint. The Urban Development Plan for Milan City produced by the *Metrograma* office in 2010/2011 for the Milan Council adopted this approach. Milan has a demographic stagnation since 1995 (Brauch, 2003) and the urban voids are expected to increase in 8% until 2015 (fig.7). However, building demand is still quite significant generally associated with the modernisation of the city's fabric. Metrograma's plan indicates industrial deactivated plans, railway yards, dumps or empty military stations as the correct spaces for urban growth (Metrograma, 2011).

Following this second approach, the traditional city can be considered a good asset to invest in since the urban density is much higher than in the modernist city. However, the inner traditional cities are generally the ones that are currently more affected by depopulation problems in Europe (fig.6). How to make inner cities attractive again?
Patrick Geddes, biologist, planner, anthropologist and botanic, of the end of 19th and beginning of 20th century, was confronted with a similar problem in the medieval core of Edinburgh, Scotland. With the construction of the *New Town* in the northern terrains of the city in between 1765 and 1850, all the inhabitants that could afford a house in this new area moved there, leaving the old medieval town abandoned and socially segregated. Patrick Geddes adopted a strategy that he named *conservative demolition* and that refused both massive demolitions and non-interventionist recovery. The main goal was to provide the *Old Town* with better living conditions without losing the character of the space. Some selected buildings were destroyed, opening air and light entries for the remained buildings, and others recovered. Still today the Old Town is considerably influenced by the work of this extraordinary eclectic man, however, what is most outstanding, is that the medieval city is still perceived by the visitor as an *untouched* place since medieval times.

2.3 Lisbon Case Study

As most of western cities after the Industrialization Era, Lisbon, the Portuguese capital city, grew and sprawled at unprecedented rates during the 19th and 20th

centuries. However, in the last decades, namely since 1960, the central Lisbon council had an overall reduction of 40% in its population, being the sharpest period between 1981 and 1991.

Portugal Lisbon Metropolitan Area Lisbon Council

Fig. 6. Lisbon's Metropolitan Area: geographical position.

Although the metropolitan area as a whole grew until 2001, the preliminary results of the Portuguese national census of 2011 show some stabilization in population numbers and the whole percentage of vacant buildings in Lisbon's Metropolitan Area[3] is already of 12,4% (Censos 2011:Parque Habitacional (Resultados Pré-Provisórios), 2011). It is important to have in consideration that both the percentage of lost population and the percentage of vacant buildings here mentioned are average ones and that the situation in some neighbourhoods severe and in others almost inexistent. Through the analyses of demographic data we can conclude that the most affected areas are in the city centre and that the five neighbourhoods having constant population declines in all decades since 1981 are: *Castelo*, *São Paulo*, *Santiago*, *Santo Estevão* and *Sé*. These neighbourhoods need urgent political measures and urban interventions. In some cases the rates of deteriorated buildings is close, or even surpasses, the 50% (See table 1).

[3] As seen in figure 6, Lisbon's Metropolitan Area is composed by 18 councils, namely: *Alcochete, Almada, Amadora, Barreiro, Cascais, Lisboa, Loures, Mafra, Moita, Montijo, Odivelas, Oeiras, Palmela, Sesimbra, Setúbal, Seixal, Sintra* and *Vila Franca de Xira*.

	Population (inhab)	Pop. density (inhab/ Km2)	Population loss since 1981 (%)	Senior rate* (%)	Open Spaces**	Building deterioration*** (%)	Inhabitants with no qualifications (%)
Castelo	619	1883	68	35,20	71,55	51	21,6
Santiago	355	2040	66	31,6	42,21	46	19,7
Santo Estevão	1511	2272	67	34	5,12	25	22
São Paulo	2728	965	59	30	9,09	48	19,8
Sé	1200	965	67	30	3,79	14	18,5

* Population share with more than 60 years old.

** Area of green spaces per inhabitant. Information collected from (Santos, 2009).

*** Percentage of buildings with structural problems.

Table 1. Some Urban and Social Indicators for the five civil parishes with steadiest population declines.

Although the only council of Lisbon's Metropolitan Area having a severe decline in the population size is Lisbon Council, it still is, according to the report *Habitação e Mercado Imobiliário na Área Metropolitana de Lisboa* (Housing and Real State Market of the Metropolitan Area of Lisbon), the most sought area for residential purposes. A survey made by the city council in 2003 asking potential house buyers where would be their ideal house demonstrates that 25% of the inquiries consider the city centre. The only two choices with higher preference rates are the countryside (35%) and near the beach (30%). This demand determines the prices in the city centre at very high rates precluding middle classes from the possibility of living in the inner city. Nevertheless, the rate of green spaces in these inner neighbourhoods is far below the recommended 40m2/inhabitant (Bernatzy, 1996, quoted in Costa, Santos, Santana, & Loureiro, 2010, p.10) for health wellbeing in urban environments.

The current economic crisis is certainly going to be a key factor to the future of the housing stock in Lisbon and in numerous cities across the world. Comparing the number of foreclosures in Portuguese capital city in January 2011 and in January 2012, it can be detectable a rise of 75% ("Forum TSF," 2012). This fact, allied with the current abandonment of the city centre might bring to front demolition as a possible solution.

Conclusion

No one can predict exactly how will urban and planning decisions be in the future in order to face a new non-growing paradigm, however, public spaces have proven to be important assets for cities with economic contraction and declining populations either by opening the opportunity to raise the average availability of green spaces for dwellers or by decreasing the energy bill of neighbourhoods and cities.

Acknowledgments

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References

Allweil, Y. (2007). Shrinking Cities: Like a Slow-Motion Katrina. *Places*, *19*, 91–94.

Audirac, Ivonne; Fol, S., & Martinez-Fernandez, C. (2011). Shrinking Cities in a Time of Crisis. *Berkeley Planning Journal*, *23*(1).

Ayres, R. U. (2006). Turning point: The end of exponential growth? *Technological Forecasting and Social Change*, *73*(9), 1188–1203. doi:10.1016/j.techfore.2006.07.002

Bartlett, P. F. (2005). Reconnecting with Place: Faculty and the Piedmont Project at Emory University. In P. F. Bartlett (Ed.), *Urban Place: Reconnecting with the Natural World* (pp. 39–60). Massachusetts: MIT Press.

Bini, P. C., Haase, A., Mykhnenko, V., Nadolu, B., Couch, C., Cocks, M., & Krzystofik, R. (2012). *Shrink Smart. Governance of shrinkage- Lessons learnt from analysis for urban planning and policy* (pp. 1–47). Leipzig.

Bontje, M. (2004). Facing the challenge of shrinking cities in East Germany : The case of Leipzig. *GeoJournal*, *61*, 13–21.

Brauch, H. G. (2003). Urbanization and Natural Disasters in the Mediterranean : Population Growth and Climate Change in the 21st Century. In A. Kreimer, Alcira; Arnold, Margaret; Carlin (Ed.), *Building Safer Cities: The Future of Disaster Risk* (pp. 149–164). Washington, D. C.: World Bank. Retrieved from http://www.preventionweb.net/files/638_8681.pdf

Brown, B. (2003). Place attachment in a revitalizing neighborhood: Individual and block levels of analysis. *Journal of Environmental Psychology*, *23*(3), 259–271. doi:10.1016/S0272-4944(02)00117-2

Censos 2011: Parque Habitacional (Resultados Pré-Provisórios). (2011). (pp. 1–5). Lisbon.

Costa, C., Santos, R., Santana, P., & Loureiro, A. (2010). O papel dos Espaços Verdes Urbanos no bem-estar e saúde das populações. *Revista de Estudos Demográficos*, *48*, 5–34.

Couch, C., & Cocks, M. (2011). *Shrink Smart. The Governance of Urban Shrinkage in the Liverpool City-Region, United Kingdom*. Liverpool.

Dettmar, J. (2005). Forests for Shrinking Cities? The Project " Industrial Forests of the Ruhr ." In T. U. of B. Kowarik, Ingo; Korner, Stephan (Institute of Ecology (Ed.), *Wild Urban Woodlands: New Perspectives for Urban Forestry* (pp. 263–276). Berlin: Springer.

European Environmental Agency. (2009). *Ensuring quality of life in Europe's cities and towns* (p. 108). EEA (European Environment Agency) report no 5. Office for Official Publications of the EU, Luxembourg. doi:ISSN 1725-9177

Forum TSF. (2012). TSF. Retrieved April 18, 2012, from http://podcast.cdn.tsf.pt/for_20120418.mp3

Fritsche, M., Langner, M., Köhler, H., Ruckes, A., Schüler, D., Zakirova, B., Appel, K., et al. (2007). Shrinking Cities: A New Challenge for Research in Urban Ecology. In M. Langner & W. Endlicher (Eds.), *Shrinking Cities Effects on Urban Ecology and Challenges for Urban Development* (pp. 17–33). Peter Lang. Retrieved from http://www.peterlang.com/index.cfm?vID=56610&vLang=D&vHR=1&vUR=2&vUUR=1

Glock, B., & Håussermann, H. (2004). New Trends in Urban Development and Public Policy in eastern Germany: Dealing with the Vacant Housing Problem at the Local Level. *International Journal of Urban and Regional Research*, *28*(4), 919–930.

Goldstone, J. A. (George M. S. of P. P. (2010). The new Population Bomb. *Foreign Affairs*, *89*(1), 31–43. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/22005884

Haase, D., Lautenbach, S., & Seppelt, R. (2010). Modeling and simulating residential mobility in a shrinking city using an agent-based approach. *Environmental Modelling & Software*, *25*(10), 1225–1240. doi:10.1016/j.envsoft.2010.04.009

Haase, D., & Seppelt, R. (2008). Land use impacts of demographic change: lessons from eastern german urban regions. In F. et al Petrosillo, Irene; Murer (Ed.), *Use of Landscape Sciences for Assessment of Environmental Security* (pp. 329–344). Dordrecht, Netherlands: Springer.

Heinberg, R. (2011). *The End of Growth*. Gabriola Island: Clairview Books.

Ingold, T. (2000). The Temporality of the Landscape. *The Perception of the Environment: essays in livelihood, dwelling and skill* (2008th ed., pp. 189–208). London and New York: Routledge.

Knudsen, B., Florida, R., Gates, G., & Stolarick, K. (2007). Urban Density, Creativity, and Innovation. *Innovation*, (May), 1–39.

Kroll, F., & Haase, D. (2010). Does demographic change affect land use patterns?A case study from Germany. *Land Use Policy*, *27*(3), 726–737. doi:10.1016/j.landusepol.2009.10.001

Kuhoutek, R., & Kamleithner, C. (2003). Temporary Uses, Deregulation and Urbanity. In R. Haydn, Florian; Temel (Ed.), *Temporary Uses, Deregulation and Urbanity* (pp. 25–37). Basel-Boston-Berlin: Birkhauser.

Loftin, C., & McDowall, D. (1982). The Police, Crime, and Economic Theory: An Assessment. *American Sociological Review*, *47*(3), 393. doi:10.2307/2094995

Metrograma. (2011). Milan: The Dense City. *The Plan: Urban Development*, 39–93.

Nations, U. (2010). UNdata: a World of Information. Retrieved May 25, 2012, from http://data.un.org/Data.aspx?d=PopDiv&f=variableID:12;timeID:1011,1031,1051,1071,1091,1111,1131,1151&c=2,4,6,7&s=_crEngNameOrderBy:asc,_timeEngNameOrderBy:desc,_varEngNameOrderBy:asc&v=120

Neill, W. J. V. (1995). Promoting the city: image, reality and racism in Detroit. In B. Neill, W. J. V.; Fitzsimons, D. S.; Murtagh (Ed.), *Reimaging the Pariah City: Urban Development in Belfast and Detroit* (p. 49). Ashgate.

Norman, P., Boyle, P., Exeter, D., Feng, Z., & Popham, F. (2011). Rising premature mortality in the U.K.'s persistently deprived areas: only a Scottish phenomenon? *Social science & medicine (1982)*, *73*(11), 1575–84. doi:10.1016/j.socscimed.2011.09.034

Oswalt, P. (2008). Shrinking Cities シュリンキング ・ シティ. In P. Oswalt (Ed.), *Shrinking Cities* (pp. 3–28). Berlin: Project Office Philipp Oswalt.

Pallagst, K., & Aber, J. (2009). The Future of Shrinking Cities : Problems , Patterns and Strategies of Urban Transformation in a Global Context. *Cities*, (May).

Rabito, F. a, Iqbal, S., Shorter, C. F., Osman, P., Philips, P. E., Langlois, E., & White, L. E. (2007). The association between demolition activity and children's blood lead levels.rabito. *Environmental research*, *103*(3), 345–51. doi:10.1016/j.envres.2006.09.011

Reckien, D., & Martinez-Fernandez, C. (2011). Why Do Cities Shrink? *European Planning Studies*, *19*(8), 1375–1397. doi:10.1080/09654313.2011.593333

Reed, P. (2008). Duisburg-Nord Landscape Park. *Groundswell: Constructing the Contemporary Landscape* (pp. 125–131). New York: The Museum of Modern Art, New York.

Rink, D., & Haase, Annegret; Bernt, Matthias; Grossmannn, K. (2012). *Shrink Smart: The Governance of Shrinkage within a European Context*. Leipzig. Retrieved from https://shrinksmart.ufz.de/data/D9 Research Brief 214223.pdf)

Rosol, M. (2005). Community Gardens – A Potential for Stagnating and Shrinking Cities ? Examples from Berlin. *Die Erde (special issue: Urban Ecology)*, (136), 165–178.

Ryan, B. D. (2008). The restructuring of Detroit: City block form change in a shrinking city, 1900–2000. *Urban Design International*, *13*(3), 156–168. doi:10.1057/udi.2008.21

Ryan, R. (2012). *Exploring the relationship between community-based urban greening and neighborhood green space in Boston, Massachusetts (USA)*. Glasgow: International Association People-Environment Studies.

Santos, M. J. (2009). *Utilização de Imagem LISS III para a Análise de Espaços Verdes em Lisboa*. Universidade Nova de Lisboa.

Schatz, L. K. (2010). *What helps or hinders the adoption of "good planning" principles in shrinking cities? A comparison of recent planning exercises in Sudbury, Ontario and Youngstown, Ohio*. *Challenges*. Waterloo.

Schetke, S., & Haase, D. (2008). Multi-criteria assessment of socio-environmental aspects in shrinking cities. Experiences from eastern Germany. *Environmental Impact Assessment Review*, *28*(7), 483–503. doi:10.1016/j.eiar.2007.09.004

Terschüren, C., Mekel, O. C. L., Samson, R., Classen, T. K. D., Hornberg, C., & Fehr, R. (2009). Health status of "Ruhr-City" in 2025--predicted disease burden for the metropolitan Ruhr area in North Rhine-Westphalia. *European journal of public health*, *19*(5), 534–40. doi:10.1093/eurpub/ckp060

Ward Thompson, C. (1998). Historic American Parks and Contemporary Needs. *Landscape Journal*, *17*(1), 1–25.

Ward Thompson, C. (2012). Places to be wild in nature. In R. Jorgensen, Anna; Keenan (Ed.), *Urban WildScapes* (1st ed., pp. 49–64). New York: Routledge.

Ward Thompson, C., Aspinall, P., Bell, S., & Findlay, C. (2005). "It Gets You Away From Everyday Life": Local Woodlands and Community Use—What Makes a Difference? *Landscape Research*, *30*(1), 109–146. doi:10.1080/0142639042000324794

Wiechmann, T. (2007). What are the problems of shrinking cities? Lessons learned from an international comparison. In T. Wiechmann (Ed.), *The Future of Shrinking Cities - Problems, Patterns and Strategies of Urban Transformation in a Global Context* (pp. 5–16). Berkeley: Studies, Center for Global Metropolitan Development, Institute of Urban and Regional Network., and the Shrinking Cities International Research.

Wilkerson, I. (1987). Infant Mortality: Frightful Odds in Inner City. *New York Times*, pp. 1–4. New York.