

European Urban Sprawl: Sustainability, Cultures of (Anti)Urbanism and »Hybrid Cityscapes«

1. Introduction

The term »urban sprawl« is often used today rather negatively, typically to describe low density, inefficient, suburban development around the periphery of cities. Many of the definitions found in the literature tend to emphasise the idea of urban sprawl being a **type of urban form** or a **pattern of urbanisation**, rather than a **process of urban change**.

However, in the view of URBS PANDENS project the latter was a more useful perspective, since it is the process of »sprawling« that leads to undesirable side effects, and it is in the process of »sprawling« that policy must intervene.¹ The aim of the URBS PANDENS study was to provide a more general discussion of the nature of urban sprawl and to consider:

- the extent to which common European patterns and processes of sprawl can be found, distinct from those previously identified in the USA;
- whether new theories can be formulated to explain urban sprawl;
- which innovations might be suggested regarding the management of urban sprawl.

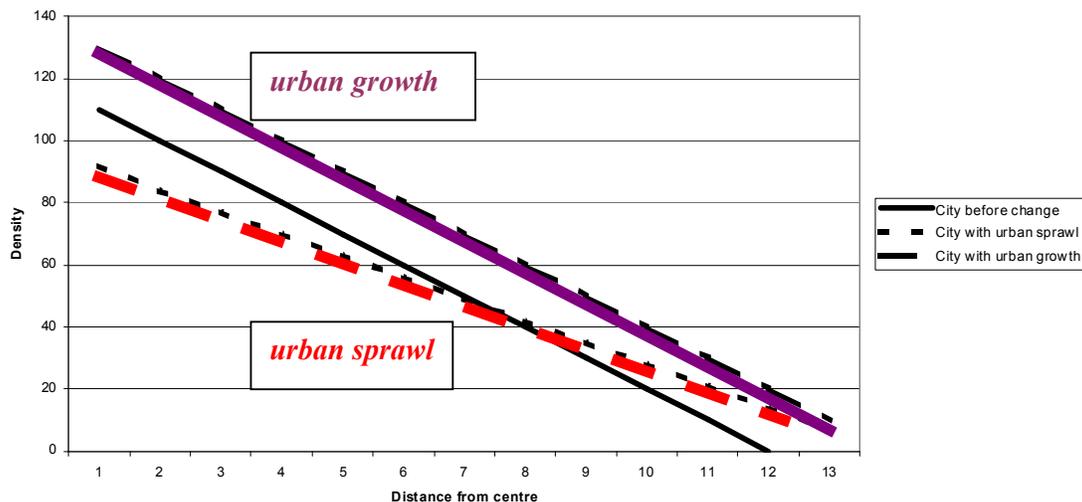
Much of the discussion of »suburbia« in terms of urban sprawl until recently was American. Among the many reviewers of the literature on urban sprawl, Chin (2002) has identified four types of definitions based upon **urban form, land use, impacts and density**. In terms of urban form, urban sprawl is generally measured against an ideal type of »compact city«. Thus any deviation from this compact city in the form of suburban growth, »ribbon« development, »leap-frogging« and »scattered« development may all be regarded as urban sprawl. Definitions based on land use tend to associate sprawl with the spatial segregation of land uses, and with the extensive mono-functional use of land for single-family residential development, freestanding shopping malls and industrial or office parks. Ewing (1994) and others have devised alternative methods of defining urban sprawl based upon its impacts as defining characteristics of urban sprawl. Chin (2002) argues that this approach creates a temptation to label any development with negative impacts as sprawl, thus creating a tautology that is unhelpful. Amongst the most recent definitions Peiser (2001, p.78) proposes that the term »sprawl« mean the "gluttonous use of land, uninterrupted monotonous development, leapfrog discontinuous development and inefficient use of land". In a similar vein Squires (2002, p.2) defines sprawl as a pattern of urban and metropolitan growth that reflects "low-density, automobile-dependent, exclusionary new development on the fringe of settled areas often surrounding a deteriorating city". Galster et al (2001, p. 681), suggest that the term has variously been used to refer to: **patterns** of urban development, **processes** of

¹ This paper has its origins in a comparative research project examining aspects of urban sprawl in Europe undertaken for the European Commission under the Fifth Framework research programme. This study under the name *Urban Sprawl: European Patterns, Environmental Degradation and Sustainable Development* (URBS PANDENS, (EVK4-CT-2001-00052) sought to understand recent trends in urban sprawl in Europe and seven case study urban areas (Athens, Liverpool, Leipzig, Ljubljana, Stockholm, Vienna, Warsaw), and to advise the European Commission on policy development with regard to control, management and amelioration of the effects of urban sprawl. The project was completed at the end of 2005. Some results are published in the scientific book Couch, C., Leontidou, L. and Petschel-Held, G. (Eds.) *Urban Sprawl in Europe: Landscapes, Land-use change & Policy*, Oxford: Blackwell Publishing, 2007, as a policy manual (in German and English) by International Council of Local Environment Initiatives (ICLEI) and as a simulation model for policy and decision makers by Potsdam Institute of Climatic Research (PIK-Potsdam) in Germany.

extending the reach of urbanised areas, **causes** of particular practices of land use, and to the **consequences** of those practices. Therefore, they suggest that sprawl is: “a pattern of land use in an urbanised area that exhibits low levels of some combination of **eight** distinct dimensions of **density, continuity, concentration, clustering, centrality, nuclearity, mixed uses and proximity**” (Galster et al 2001, p. 685). One of the advantages of this definition is that accommodates different *types* of sprawl. Furthermore it permits sprawl to be considered as a **process** and not merely a **pattern** of urbanisation. However, it is very demanding on data, which makes its widespread application difficult as the definitions of urbanised areas and the nature and availability of data vary so widely between individual cities, regions and countries, – that is a particular problem when looking comparatively across Europe.

Traditional urban models usually show the intensity of urban activity to be greatest in the city centre and gradually declining towards the edge of the urban area (Alonso, 1964) (see Figure 1). There is a density gradient that tends to slope downwards away from the city centre. The slope and precise shape of this line will vary with the nature of the activity being measured. Consequently “urban growth” can be defined in terms of either an expansion of population or economic activity within an urban area. All other things being equal urban growth will cause the density gradient line to shift and become less steep. Thus the gradient for employment density will differ somewhat from that for population, housing, or floorspace. Nevertheless, if theoretically accepted, “urban sprawl” will always result in the density gradient becoming less steep, that was a starting defining feature of urban sprawl in the URBS PANDENS study - that distinguish **urban sprawl** from **urban growth**. In reality, a whole range of factors including local topography, transport routes, suburban centres will distort density gradients. Furthermore, post-modern urban analysis recognises number of additional influences on urban change and urban form, such as cultural differences between the Mediterranean city, Northern European Central European, or Anglo-American city (Leontidou, 1993, 2001).

Figure 1: Distinguishing urban sprawl and urban growth



Source: Couch, C., Leontidou, L. and Petschel-Held, G. (Eds.) *Urban Sprawl in Europe: landscapes, land-use change & policy*, Oxford: Blackwell Publishers (2007).

Therefore the (operational) definition of the sprawling process in European urban areas at the beginning of the URBS PANDENS project in year 2002 was that “...sprawl is to be considered as a process of extending the reach of urbanised areas and not merely a pattern

*of land use in urbanised areas, that exhibits a **low levels** of some combination of distinct dimensions of sprawl as density, continuity, concentration, clustering, nuclearity, and mixed land uses....”*

2. Some differences between Europe and the USA

The literature and theory on urban sprawl is substantial and already provides a good explanation of its nature, causes and consequences, despite the fact that most of it has been written by North American scholars, particularly while only few very recent books concern Europe (Hoggart, 2005; Phelps et al. 2006; EEA, 2006). Also the scientific discussion on how to develop policies to control sprawl is still at an early stage. The URBS PANDENS study firstly used the North American literature and combined it with own research findings to develop a different approach adapted to the European situation. Urban sprawl in Europe has sometimes much in common with sprawl in North America, but European sprawl has its own different characteristics. Therefore, urban sprawl in Europe requires a different definition and theoretical explanations of causes and consequences from those developed to explain urban sprawl in North America.

The topic of urban sprawl appears to be of much greater concern to policy makers in the USA than in Europe. Much of the equivalent debate in Europe is shaped around such concepts as »suburbanisation« or »de-centralisation«. Also the theories are different. Peter Hall (1975) makes a clear distinction between the Anglo-American and the European tradition in urban planning. In Anglo-American urban theory there has been a strong attachment to suburban development and the linking of town and country. As a reaction against the unhealthy urbanity of the 19th century, Howard (1902) conceptualised the idea of the »Garden City«, which would bring together the virtues of the town (jobs, culture, opportunities), with the virtues of the countryside (greenery, fresh air, quietude). Both in Britain and in USA this ideal was taken up as a powerful normative theory of planning, in shaping the form of urban growth through the 20th century. In Britain this led to the development of »Garden Cities« (i.e. garden suburbs) and, eventually to the »New Towns« programme of planned suburbanisation. In the USA, in 1930s Perry developed the concept of the suburban “neighbourhood” and Stein went further by separating vehicular traffic from pedestrians. At a same time Frank Lloyd Wright developed his vision for *Broadacre City*, consisting of single-family homes, each surrounded by a large plot of land. In Britain, in his Greater London Plan (1944), Abercrombie advocated a concentric ring approach to the planning of London with planned satellite towns to absorb overspill of population and sprawl. Thus both Britain and the USA had strong advocates who legitimised the low-density residential neighbourhood as a desirable urban form. Although the »Garden City« movement has its examples in continental Europe, the idea never obtained the dominance as in Britain and the USA. More influential were the ideas of Le Corbusier (1933) with radically different proposals – that the inner city required remodelling besides the suburbs, with a use of modern technology to increase urban densities by building a *high-rise city (La Ville Radieuse)*. In continental Europe, these ideas had important effects on planning the urban form throughout the post-Second World War period.

Beyond urban theory and planning ideals, there are other contextual differences that differentiate urban sprawl and its control between the USA and Europe. The most important of these are the following (Couch, Leontidou, Petchel-Held, 2007):

Policy and Governance

- Urban and environmental policy in the USA appears to be embedded within a fundamental orientation of all tiers of government towards a belief in the supremacy of the market and market-led solutions. In most European countries there is a more ambivalent and complex relationship with the market than in USA.

- There appears to be a fundamental orientation in US politics towards little government intervention and significantly lower levels of taxation and public spending to those typically found in Europe.

Local government structure

- In Europe central and regional governments have more control over local authorities that brings greater cohesion and direction to public policy. The European Union (EU) also has a binding effect.
- The average US Primary Metropolitan Statistical Area (PMSA) comprises many municipalities, each with its own powers over local taxation and land use planning. In Scandinavia the municipalities control taxation and land use planning, with very weak regional planning. Even in France that has retained the historic *communes*, they are subject to strict planning guidance from the region, the *département* and frequently a *communauté urbaine*. Other European countries have evolved larger units of local government, with the largest average size found in England, where most cities are contained within a single local authority. It appears that the smaller and more independent local government units are, the more there will be competition between them to attract development and encourage sprawling patterns of urban development.

Political and scientific concern for sustainable development

- In the USA there has been less of a lead in environmental policy from the Federal government where much of the policy innovation come from individual states or local municipalities, some adopting strongly environmentally friendly policies whilst others remain hostile to the environmental agendas;
- Within Europe there seems to be now a high level of consistency of concern and approach to *sustainable urban development* both within and between countries. The EU provides a strong lead in environmental policy, which is cascaded down through national governments to regions and local municipalities. Northern European countries are amongst the world leaders in developing and implementing environmental policies.

Economic and social geography and the scale of urban problems

- GDP per capita in the USA is around 140% that of the EU average. Transport and housing prices in the USA are comparable with EU, but the difference in GDP enable the purchase of more journeys or cars and more land or housing per capita that encourage more urban sprawl in the USA than in EU.
- Urban areas occupy only about 1.0% of the total land area of the USA. The overall population density is 31 persons per sq.km, and there is little sense of a shortage of land. The population density in most European countries is higher. Urban areas occupy between 5%-10.0% of the total land area, and there is a significant sense of land shortage.
- Few US cities contain a traditional inner city of middle class housing, whereas many European cities contain heritage sites and listed buildings, and have a strong tradition of middle class living within the inner city. They also share a cultural tradition of urbanism and urban life style patterns.
- Race and racial tensions may also be more significant causes of urban sprawl in the USA than in Europe. Racial segregation persists as a central feature of metropolitan housing markets, particularly in those communities with large African-American populations.
- The sprawling suburbs around the typical US city are often bigger than in Europe. They are growing faster and the divergence in living conditions between suburbs and the inner city are relatively greater.

- Furthermore, most European countries have had relatively strong planning systems which simply have not allowed the problem of urban sprawl to get out of control to the extent that it appears to be in some US cities.
- Another feature of the debate is that there seems to be a stronger backlash in favour of sprawl in USA than has so far been the case in Europe.

3. Developments towards urban development theory and policy in Europe

In their analysis of urbanisation and urban growth in Europe, Hall and Hay (1980) identified considerable variability in urban trends over the decades 1950-1970 in different European macro-regions.² In the Great Britain and Ireland they found a strong tendency towards decentralisation of population away from urban cores, together with substantial inter-regional shifts in population, similar to the North American model. Northern Europe (Sweden, Norway and Denmark) seemed to be following similar trends but with a time lag of a decade or more. In Western Europe (Belgium, Netherlands, Luxembourg and France) it was difficult to identify any homogenous trend, with the Netherlands and Belgium decentralising and France showing a strong tendency towards centralisation. Similarly in Central Europe (West Germany, Switzerland and Austria) there were contrasting trends with both population and employment decentralising in Switzerland and Austria whilst in Germany population seemed to be decentralising whilst employment continued to centralise. However, in Southern Europe (Spain, Portugal and Italy), this experience was almost completely contradicted, with a strong tendency towards centralisation still being the norm. Eastern Europe, not analysed by Hall and Hay, but (some countries) included in a study by van den Berg et al. (1982) represents another pattern of European urbanisation in the late 20th century.³

Van den Berg et al. (1982) study attempted to analyse further the process of urban change emphasising the diversity of European urbanisation. They set up a hypothesis that cities evolve in a sequence of urban development stages or »urban life cycles«: *urbanisation, suburbanisation, des-urbanisation and re-urbanisation*, in terms of core, ring and FUR characteristics. It was postulated that *re-urbanisation* would primarily mean a qualitative recovery of the city core with stabilisation or modest population growth coupled with employment growth in some (new) sectors. Two systematic comparative analysis of urban trends in 1980s (Cheshire and Hay, 1989; Drewett, Mason, Milanovich, 1991) suggested a substantial »break-up« of the previous regular pattern of decentralisation (suburbanisation), which spread from Northern to Western and later to Southern European cities and from the largest to the medium-sized ones.⁴ Both studies agreed that the general pattern of urban decentralisation continued into the period 1980 - 1985. The most notable features were increase in absolute and relative decline of population in Southern Europe, and the continued decline of most major cities elsewhere in Europe. The 1985 - 1990 was in great contrast to the trends of the previous fifteen years. A general stabilisation of population change was evident across Europe, as cities tended to either experience slight growth or

² Hall and Hay (1980) study intended to be the companion volume of the urban system study in USA (Berry, 1973).

³ The van den Berg et al. (1982) comparative study of European urbanisation included 10 countries from Western Europe with Bulgaria, Hungary, Poland and Yugoslavia from Eastern Europe. This study known as the »Cost of Urban Growth« (CURB) was undertaken on behalf of the European Coordination Centre for Research and Documentation (i.e. *Vienna Centre*) using a similar functional urban area definition by Hall and Hay (1980) with core, ring and FUR (*functional urban region*), with the aim to study the costs associated with urban change.

⁴ Cheshire and Hay (1989) using Hall and Hay (1980) classification of FUR studied urban change in 122 urban regions between 1971-1981 and 1981-1987 in EU (12) countries. This study was commissioned by the EU DG XVI to identify the urban regions that were most seriously threatened by urban decline and regional problems. Drewett, Mason, Milanovich (1991) study of urbanisation trends in 218 urban areas in 24 European countries from 1970-1990 used the administrative definition of city as a »core« and NUTS 3 regions for FUR. This study was part of wider comparative research of the role of science and technology in European cities undertaken within the EU DG XII FAST/URBINNO programme (see Drewett, Schubert, Knight, 1992).

slight decline. They revealed that 1985-1990 period represented a major shift away from the predictability of the patterns of the »urban life cycle«, as cities in Southern Europe exhibited similar patterns to those in Northern and Western Europe whilst in Eastern Europe the capital cities displayed a tendency towards lower rates of population growth. The process of re-urbanisation had its inception in Northern Europe in the early 1980s, and by the mid-1980s had become evident in major cities of Western, Central and Southern Europe. Whilst it has been identified that most of the city cores have exhibited absolute or at least relative growth after 1985, most suburbs of major cities exhibited only relative (but not absolute) decline,⁵ which growth has been reinforced since 1990s with intensification of the sprawling process.

It was evident that the urban processes that have helped to determine population dynamics in 1980s in European cities were extremely complex and cannot easily be explain using hypotheses such as the *urban life cycle*. Although the trajectories of some cities neatly conformed to the urban life cycle model, there are others that did not. This was particularly the case in Southern Europe where many cities prove to be more attractive as providers of different types of housing and jobs, desirable lifestyles, university, cultural and tourist activities. The specificity of urban dynamics in Eastern Europe was caused by the absence of market mechanisms, collective ownership of urban land and infrastructure, centrally planned allocation of resources, and the existence of comprehensive settlement planning strategies as instrument of regional development. As a result the differences between Western and Eastern European urban development before 1990s were neither wholly systematic, nor were solely the result of »belated« development (see also Enyedi, 1990; French and Hamilton, 1979; Friedrichs, 1988; Kennedy and Smith, 1988; Musil, 1980; Pichler-Milanovich, 2001).

There has been no comparative study of European urban change in 1990s in the line with the previous *evolutionist* (urban life cycle) studies. In 1994 URBAN AUDIT was established within the EUROSTAT and EU DG *Regions* that has been generally building up the comparable socio-economic and environmental data for European cities, for both the administrative city (»core«), and »larger urban zones« (LUZ) as a proxy for FUR.⁶ By comparing the URBAN AUDIT database for 1991-2001 it is somehow possible to obtain a brief impression of population and employment trends in European cities and the extent of urban sprawl. In 1990s the population growth was relatively slow, mostly dependent upon in-migration while households were getting smaller. These changes have increased the share of population living in urban areas (LUZ) while decreasing in density, especially in the administrative core. In some urban areas in Europe population have increased while in other decreased showing mixed patterns of sprawl. Only Scandinavian urban areas are experiencing overall population growth with little sprawl (»containment«), as a positive example of »sustainable« sprawling patterns, at least on the scale of urban regions. Leipzig and Liverpool are the examples of sprawl in urban areas affected by overall population decline both in the city core as well as in LUZ

Table 1: Types of urban areas in Europe: *urban growth vis-à-vis urban sprawl* (1991-2001)

Urban growth with containment	Urban growth with sprawl
Copenhagen	Amsterdam

⁵ This trend towards re-urbanisation at the end of 1980s was confirmed by Cheshire (1995) using the same definitions of FUR for 241 cities as in the study of Cheshire and Hay (1989), but analysing the results of the 1990/1991 census rounds in 12 EU countries.

⁶ The URBAN AUDIT collects information on the living conditions in 258 large and medium-sized cities within the EU (27). One of the main goals of the Urban Audit is to allow mayors and other locally elected officials city comparisons in Europe that can facilitate the exchange of experiences and improve the quality of local urban policies (<http://www.urbandaudit.org>).

Stockholm	Athens Berlin Brussels Dublin Lisbon Ljubljana Luxembourg Vienna Warsaw
	Birmingham Bratislava Budapest Leipzig Liverpool Prague Rome
Urban decline with containment	Urban decline with sprawl

* with exceptions of Leipzig (D), and Liverpool(UK) all other are capital cities.

URBS PANDENS case study urban areas are in bold.

Source: URBS PANDENS classification using URBAN AUDIT data.

From the perspective of urban policy development in Europe, rather than statistics alone, many European governments sought between 1950-1970 to invest in planned urban expansion schemes, either to absorb the overspill from post-war reconstruction or slum clearance programmes in the inner city areas, or to accommodate population growth and rural-urban migrations. In many cases these developments took the form of »new towns« (especially in Britain and France) or peripheral extensions to existing urban areas. Much of this planned urbanisation, regardless of location, was built at lower densities (including the multi-storey housing developments), than in the existing urban areas (Power, 1993). This was an example of *planned urban sprawl or decentralization* of population and jobs. However in the 1970s there was a shift in urban policy across Europe. The outward migration from the core cities was increasingly perceived as problematic, particularly as the local tax base began to decline, at the same time when resident populations were tending to become disproportionately old, and dependent upon local authority services. At the same time there was a concern about the destruction of cultural heritage as notions of urban conservation began to emerge. This powerful impact of different pressures led to a new policy known as *urban renewal* (Couch, 1990). The conservation of urban heritage and gentrification of attractive inner city neighbourhoods has become a priority. At the same time household size was declining, divorce rates rose and the number of single-parent families continued to grow, with overall increase in housing demand. A high proportion of international in-migrants settled initially in the inner cities in Northern and Western Europe, where housing and employment were most readily available. In some cases these trends became associated with ethnic tensions and anti-social behaviour, which in turn became drivers of demand for residential sprawl. In Southern Europe the opposite case was also frequent, since criminality in the suburbs and beyond is said to have kept people in the inner city. Suburbanisation brought increasing spatial and social segregation as social housing were allocated to the working class on the basis of need (by definition excluding the middle classes), whilst new suburban private housing developments, frequently built at some distance from social housing estates, excluded those who could not afford their prices, or were not part of distribution chains. Industrial closures and shrinkage had the effect of removing employment and weakening the links between inner city housing and jobs thereby encouraging the outward migration of those seeking work in suburban locations or to make longer distance moves to other cities and regions. Conversely, these closures also created large tracts of vacant and derelict land with

the potential to be re-used for other purposes. In practice these other uses frequently turned out to be housing, thereby providing some assistance with re-urbanisation and slowing the process of sprawl in 1980s.

Therefore selective city regeneration and re-urbanisation in 1980s occurred as a consequence of changes in social values, pattern of economic activities, and the active role of local governments in urban development. Technological advances, particularly with respect to information and telecommunications have promoted new economic activities that have largely been based on educated labour force concentrated in capital city regions and other metropolitan areas. In 1990s the attractiveness of cities has been reinforced by the wide cultural diversity, historical base and the entertainment facilities that are concentrated within them. Improving city accessibility and transport infrastructure is reflected in the number of large scale projects that include airport expansion, building of high speed rail links and termini, intra-city public transport projects such as new light rail, metro and guided bus systems, along with some measures designed to minimise the impact of motor vehicles on the urban environment. The international image of the city is becoming a significant factor to economic prospects, and city competitiveness. European cities have been engaged in a process of globalization and territorial competition between each other that leads to a redistribution of the political and economic relations between cities, regions and the (enlarged) EU (see Cheshire and Hay, 1989; Cheshire and Gordon, 1995; Drewett, Schubert, Knight, 1992; Jensen-Butler, 1997; Lever, 1993; etc.).

Furthermore, the analysis of theory and policy has also to acknowledge that even within Europe there are subdivisions and groupings of countries that may make it inappropriate to develop a single explanation for European urban sprawl. Housing systems play an important role in determining the causes and extent of urban sprawl in any country and have some influence on the scope and means of public intervention to control urban sprawl. Balchin (1996) subdivided housing provision in Europe into four groups of countries: (i) *private-rented housing* (Germany and Switzerland); (ii) *social housing* (Netherlands, Sweden, Austria and France); *owner-occupation* (United Kingdom, Ireland, Spain and Italy); housing system in »transition« with different *modes of decommodification* (Hungary, Czech Republic, Poland, Slovenia, Croatia, etc.). Not only do housing systems and urban policies vary across Europe, but also do *the planning systems*. Thornley and Newman (1996) identify five types of legal and administrative governance in Europe and have grouped countries into *families* according to the *planning regimes*: *British* (UK, Ireland); *Napoleonic* (France and much of southern Europe); *Germanic* (Germany, Austria, Switzerland); *Scandinavian* (Denmark, Sweden, Norway, Finland); *East European* (before post-1989 transformation). Thus any debate about policy responses to urban sprawl must recognise that the scope for intervention, the administrative level and the nature of that intervention will vary considerably between each national government, each type of planning and housing system, and the nature of local urban trends.

According to the *Brundtland Commission* (1987) the uncontrolled physical expansion of cities with provision of housing, roads, water supply, sewers and public services has had serious implications for the urban environment and the economy. Cities are often built on the most productive agricultural land, and unplanned growth results in the unnecessary loss of this land. Three years later, the European Commission's Green Paper on the Urban Environment (1990) suggested that strict zoning policies had led to the separation of land use and the development of extensive residential suburbs, which stimulated traffic generation. The UN *Agenda 21* (1992) and the UN *Habitat Agenda* (1996) asked that all states promote sustainable patterns of urban development and land use, and the European Commission (1998) called for sustainable urban planning strategies that would emphasise mixed use and more compact urban development that would use less land and reduced energy consumption. By the end of the 20th century the control of urban sprawl had become a major consideration of urban policy in most European countries. Furthermore, the European *Spatial*

Development Perspectives (ESDP, 1999) emphasised that “it is necessary to work together to find sustainable solutions for planning and managing urban growth” (European Commission, 1999, pp. 64-65). Most recently a report on urban sprawl in Europe jointly commissioned by the European Environment Agency and the European Commission concluded that according to the »good governance« criteria the EU has specific obligations and a mandate to act and take a lead role in developing the proper frameworks for intervention at all levels, and to pave the way for local action. Policies at all levels - including local, national and European, need to have an urban dimension to tackle urban sprawl and help to overcome the market failures that drive urban sprawl (EEA, 2006; EU Territorial Agenda, 2007).

In year 2005 the total population of the EU (25) was just over 455 million, giving an average population density of about 117.5 inhabitants per km². This can be compared with the USA, which had a population of 296 million in 2005 and a population density of about 31.6 inhabitants per km². Looking towards the next twenty years it is anticipated that the total EU population will increase only moderately. Because the population is ageing and fertility rates are generally low, even this level of growth is dependent upon inward migration from outside the EU. There is also likely to be some modest internal redistribution of population with some internal migration from east to west of Europe (European Commission, 2004). According to UN estimates the proportion of the population of Europe living in urban areas is likely to rise from 73% (2005) to 78.0% in 2025 (United Nations, 2004, 2006). There is a continuing drift of existing populations from rural to urban areas, and the majority of new immigrants from other countries tend to settle in urban areas, reinforcing existing patterns of (re)urbanisation. If these trends continue it is estimated that urban areas will have to accommodate around 28 million additional inhabitants over the next 20 years. The pressure for further urban sprawl and land use change will be considerable - whether accompanying urban growth or decline in Europe (Couch, Leontidou, Petchel-Held, 2007).

4. The URBS PANDENS case study urban areas

Variations in local conditions, traditions and built environment led to different forms of sprawl in different countries. In the USA, richer than Europe and with more land, car ownership grew faster, building plots became bigger, and suburbs sprawled further and at lower densities than in Europe. In England, more affluent in the 19th and early 20th century than some of European neighbours, and with a tradition of living in houses, supported by a planning ideology and a favourable housing finance system, suburbs grew quickly. In France, Germany and some other European countries, with highly capitalised building industries, traditions of higher density (medieval) towns, and multi-dwelling housing estates (in the 20th century), a planning ideology that favoured high-rise buildings over sprawling, suburbs were slower to develop. In Southern Europe weaker planning systems combined with more individualised and undercapitalised building processes led to less organised patterns of low density urban growth around many cities. In Eastern Europe the privatisation of property and demise of the planning system in 1990s have (re)enforced suburbanisation and a sprawl.

Elsewhere in Europe – urban sprawl, whether accompanying growth or decline, remains a problem, but the context for urban sprawl varies considerably between each of the seven case study URBS PANDENS cities: Liverpool (UK), Stockholm (Sweden), Vienna (Austria), Athens (Greece), Leipzig (Germany), Warsaw (Poland) and Ljubljana (Slovenia). These areas were chosen to represent a variety of different aspects of urban sprawl. Liverpool, Stockholm, Vienna and Athens have all experienced *evolutionary* change under market economic systems, whereas Leipzig, Warsaw and Ljubljana all illustrate aspects of the *revolutionary* change from socialist to market economies that occurred after 1989. Stockholm, Vienna, Athens, Warsaw and Ljubljana are all capital cities and benefit from additional types of investment that cannot be found in Liverpool or Leipzig. Ljubljana became

the capital city in 1991 but it is only a middle-size city in comparison with other URBS PANDENS cities. Furthermore, Liverpool and Leipzig illustrate the experience of urban sprawl continuing during periods of sustained population decline in 1990s.⁷

Table 2: Population change in the URBS PANDENS case study urban areas (1991-2001)

City	(a) Core (b) LUZ (1991)	Population change (%) of LUZ (b)* (1991-2001)	Change in the percentage of LUZ population living in the core city (a)* (1991- 2001)	(a) Core (b) LUZ (2001)
Liverpool	(a) 475.600 (b) 1.438.000	-5.3%	-0.8%	(a) 439.476 (b) 1.362.004
Stockholm	(a) 674.452 (b) 1.641.669	+11.1%	+0.1%	(a) 750.348 (b) 1.823.210
Vienna	(a) 1.539.848 (b) 2.062.969	+2.8%	-1.5%	(a) 1.550.123 (b) 2.121.704
Leipzig	(a) 542.512 (b) 940.822	-3.1%	-3.7%	(a) 493.052 (b) 912.064
Warsaw	(a) 1.644.515 (b) 2.300.000	+8.9%	-0.1%	(a) 1.609.780 (b) 2.631.902
Ljubljana	(a) 272.650 (b) 470.641	+3.8%	-2.5%	(a) 270.506 (b) 488.364
Athens	(a) 772.072 (b) 3.072.922	+26.7%	-4.8%	(a) 789.166 (b) 3.894.573

*(a) Administrative city (core) and (b) larger urban zones - LUZ ("urban region").

Source: URBS PANDENS calculations from the URBAN AUDIT data.

The comparative outline of these seven case study urban areas provides some empirical evidence on trends, processes and patterns of urban sprawl. According to population change the case study urban areas fall into three groups. **Athens and Warsaw** are experiencing rapid population growth in the overall urban area (LUZ) combined with increase in sprawl, as a consequence of economic growth combined with a relatively weak planning system. **Ljubljana, Stockholm and Vienna** are experiencing growth in the urban area but with modest increases in sprawl, where economic growth is probably combined with more successful controls over urban sprawl. **Leipzig and Liverpool** are experiencing decline in the urban area combined with stronger controls over urban sprawl. Nevertheless, **Liverpool and**

⁷ More details on the URBS PANDENS case study cities are available on www.pik-potsdam/urbs, and in Couch, Leontidou, Petchel-Held, 2007.

Leipzig are with Athens, one of the most sprawling cities in the URBS PANDENS study.⁸ **Athens** is something of a special case where sprawl has historically been fuelled by waves of rural-urban migration and illegal housing development at the urban periphery, urban environmental pressures, and more recently, heavy investment in infrastructure in urban region for the Olympic Games 2004. **Ljubljana, Leipzig and Warsaw** illustrate different impacts of transition from socialist to market economies on the »intensity« of the sprawling process. **Liverpool and Leipzig** show the pressure for sprawl even when the local economy and population are in decline. **Stockholm and Vienna** have strong planning systems with well-developed patterns of urban living, but their affluence creates pressure for sprawl, particularly through the acquisition and occupation of second homes. According to the evidence from the seven case study urban areas the most intensive sprawling process has recently occurred in **Leipzig and Athens**. In **Liverpool** urban area the peak time of the sprawling process occurred some time ago, while in **Warsaw** metropolitan area it has been belated due to the lack of modern infrastructure.

Therefore the high level of diversity in sprawling pattern makes it very difficult to formulate a coherent and comprehensive picture of the sprawling process based on only on patters of urban sprawl in the case study urban areas. The URBS PANDENS project has undertaken a comprehensive review of causes, consequences and anti-sprawl policy approaches in seven urban regions, and in selected municipalities at the urban peripheries that were mostly affected by residential, commercial, or leisure-related sprawling process in 1990s.

5. »Causes« of urban sprawl

Urban sprawl is caused by a complex set of inter-related forces. These can be identified at three levels of analysis implemented in the URBS PANDENS project (Dangschat, Kratochwil, Mann, 2003). At the »macro-level« are the trends that shape our urban societies - the nature of capitalism, political ideologies, globalisation, etc. The inta-regional or »meso-level« is where much of the causes of urban sprawl can be found at different urban and regional levels. The »micro-level« captures the decisions of individual actors in urban areas: households, firms, organisations, interest groups about the location of housing and jobs, use of services and amenities, choices of transport mode.

Macro-level causes

At the highest level of analysis **macro-economic and social trends** pressurise cities to develop in certain ways. The **globalization** trends accompanied by reductions in long-distance transport costs, has led to increasing competition between cities for economic activities. This has led to urban decline, whilst at same time providing the sort of development that capital requires, frequently at or beyond the existing urban periphery. **Technological innovations**, the introduction of mass production, assembly-line techniques led to economies of scale that forced industries to seek large extensive production sites on the cheaper land at the urban periphery. The promotion of the '**property-owning democracy**' has been favoured by many governments in Europe, that leads on to demands for the construction of individual private dwellings, frequently in the form of low-density residential areas at the city periphery, that can be contrasted with the more collective housing. On the supply side certain economic sectors benefit particularly from urban sprawl. **Housebuilders** can obtain greater productivity from large-scale developments on greenfield sites than can be obtained from smaller and more complex urban redevelopment sites. The **suppliers of household equipment** (e.g. white appliances, furniture, furnishings, etc.) are more involved as more dwellings are built. The **suppliers of infrastructure** (e.g. highways)

⁸ The pressure for urban sprawl is also influenced by other factors such as employment structure, income levels, unemployment, household composition and housing tenure.

also gain from urban sprawl. Out-of-town supermarkets, discount stores and shopping centres offer more efficient ways of retailing, often by passing on to the customer a proportion of the transport costs involved. *Landowners* are continually seeking to maximise the returns from their holdings that are (excluding non-profit landowners) constantly seeking to convert their agricultural land into urban land. On the demand side, rising *real incomes*, lead to pressures for the development of housing, the enjoyment of goods and services, and ever-increasing mobility, that in turn leads on to increasing demand for residential development, distribution centres, retail and leisure parks, and transport to convey people and goods between all of these places (Adams and Watkins 2002; Newman and Kenworthy 1999). In addition to economic aspects, there is also a *social aspiration* for suburban living that creates its own demand for urban sprawl. *Affordability* is also very important. For older households and higher income groups the proximity to the countryside and coast is an important secondary influence. Older and lower income households are also influenced by the proximity of shopping and public transport facilities. If peripheral developments are perceived as lower in crime, quieter and nearer the green areas, demand for sprawl will continue, especially if real incomes continue to rise, and if offering affordable housing to younger age groups. The **changing structure of households** also plays a key role in the process of urban sprawl. Average household size is falling across most of Europe. Much of this reduced household density has to be accommodated by urbanising additional rural land. Younger, single or childless households are increasingly occupying dwelling units closer to city centres as families become more concentrated in the suburbs. Throughout the 20th century the combination of rising car ownership and highway building continued to reduce transport costs and allow developments to sprawl at greater distances at no financial cost. This has allowed cities to sprawl over a larger area without economic loss. Residents can live at greater distance from their places of work, shopping and leisure, without additional travel costs. Similarly, firms can deliver goods and services over larger areas without additional travel costs. Within this overall context individual national governments create their own social, financial, fiscal and **regulatory** environments that encourage or discourage urban sprawl to different degrees.

Meso-level causes

Within these macro-contexts, the circumstances of individual urban regions become significant at the *meso-level*, in determining the extent and nature of urban sprawl. The social and economic structure of a city and region will affect the extent to which there is pressure for sprawl and how those pressures are accommodated. Many urban areas have experienced processes of **de-industrialisation** that resulted in mass unemployment, falling incomes, hardship, out-migration and falling demand for housing, particularly in the inner urban areas. The process has led to the availability of large plots of vacant urban land, whose owners are under economic pressure to seek profitable re-use. At the same time, local governments keen to attract replacement jobs, are willing to sacrifice greenfield land to industrial use. Urban and rural landowners are pitted against each other in a competition to attract new uses in a declining land market. The particular character of the industrial closures leads to distinct local pressures encouraging or reducing urban sprawl. The waterside and warehousing associated with ports in cities such as Stockholm or Liverpool lends itself to redevelopment for residential purposes. On the other hand the former coalmines and steelworks that scarred the landscape of Leipzig present more difficult regeneration challenges. Here with less scope for the intensive re-use of buildings, urban revitalisation is more difficult and there is less to discourage urban sprawl. The **strength of the local economy** has important implications for sprawl. In Liverpool, relatively weak economic performance over many years has limited demand for housing, industrial or commercial development and created many vacant sites within the urban area where the level of urban sprawl is relatively modest. In contrast, Vienna, with a booming economy based upon higher education, research and services, has a high demand for development and very few developable sites within the inner city area. In consequence the demand for urban sprawl is

more difficult to resist. There are cities urbanising by *in-migration*, such as Athens, which revitalises the centre but often also contributes to sprawl outwards that led to uncontrolled sprawl and illegal land development. **Local government structures** and **tax systems** also have an impact on urban sprawl. In the UK local inner city and their peripheries fall within the same local authority and strong planning regime than in many parts of continental Europe. There are many instances where the pressure to increase local tax revenues has encouraged suburban local authorities to permit urban sprawl as commercial developments or middle-class residential housing. **Local development plans and planning decisions** may make generous or restrictive provision for peripheral expansion. They may impose tough or weak density requirements, encourage or discourage mixed uses, or lead to the building of infrastructure that may in turn encourage urban sprawl. In Athens and Leipzig building of the new airport and associated transport infrastructure has created major pressures for urban sprawl outside the city where the impact of local plans was very weak in this case.

Micro-level causes

The location **decisions** made by a multitude of agents have a profound effect on urban sprawl (Phelps et al. 2006). Decisions made by employers are influenced by the local interplay of the macro and meso level factors. Each firm make decisions over the scale and location of production with a direct effect on urban sprawl, taking into account local plans and policies, infrastructure, utilities, land costs, tax regimes, labour costs, etc. For each firm these factors may impact in different ways, leading to different location decisions. Similarly, individual household decisions will be determined by local economic and social conditions, environmental circumstances, infrastructure provision, the quality of services, such as schools, costs and value for money, and the perceived qualities of individual neighbourhoods. Other agents include developers and building entrepreneurs, who create expensive or affordable housing and shops in different locations. Here the need for an adequate mathematical formalization or model to support the deductions from the macro and meso level of analyses became obvious, because simple rules of interaction, each of them well known or at least plausible, added up to a complex network of interrelations. It became almost impossible to deduce the dynamic consequences of such networks simply by inspection. So the QUAM-Model (QUalitative Attractivity Migration) was established as a mathematical framework that would represent qualitative relationships identified in the different case study urban areas (Couch, Leontidou, Petschel-Held, 2007; Deal and Schunk, 2004). Feedbacks of changes in a region on the attractiveness for a specific actor class are a typical example where a quantitative representation is not justified by the object, but only by the necessity generated by the method.

6. »Consequences« of urban sprawl

Identifying and evaluating the consequences of urban sprawl is a challenging and complicated task of great interest to planners and all actors seeking sustainable development. However, though many of them are well researched and seem indisputable, some are still ambiguous or lacking in precision or difficult to attribute to the process of urban sprawl. Difficulties also arise with respect to appropriate indicators to measure the effects of urban sprawl. In part, the problem is the extent to which a potentially negative phenomenon (e.g., air pollution) can actually be attributed to sprawl, as distinct from say, a general rise in car ownership. This difficulty arises especially in the post-socialist cities where the rapid change of urban development made it nearly impossible to retrace in particular the economic or social processes of urban sprawl. There are many instances where the private costs and benefits of sprawl differ from the social costs, or where a sprawling decision might have benefits for one social group while and costs for other groups (Ewing, 1994).

In the URBS PANDENS study the multitude of consequences of urban sprawl has been grouped under three headings: **transport, density, and conversion of rural to urban land**. By definition sprawl leads to greater distances between homes, between homes and jobs and between urban activities generally, generating more demand for travel and improvements in transport systems. Secondly, sprawl leads to changes in urban densities, most commonly a reduction in densities in the urban core and an increase in densities towards the periphery. Thirdly, urban sprawl usually, involves the conversion of previously rural land into urban use. This typology does not allow a neat division of the effects of urban sprawl uniquely into any of the three categories.

It seems generally accepted that urban sprawl leads to an increase in the number and length of **transport** journeys and shift in modal split towards the motor vehicle. These changes then have:

- **environmental consequences**: increased energy consumption, air pollution by CO₂, NO_x, water pollution by oil, petrol, rubber etc., noise pollution, land consumption, surface sealing, and ecosystem fragmentation;
- **economic consequences**: costs of infrastructure construction and maintenance, vehicle production and maintenance, the personal costs associated with vehicle ownership and use, the amelioration costs of dealing with the socio-environmental costs of transport);
- **social consequences** (including accidents, stress, loss of time spent travelling).

The **density** is at the very heart of urban sprawl consequences, as almost all its phenomena can be described as a change in density of people, firms, houses, jobs, etc., and a reallocation of land by the establishment of new developments in rural areas and at the same time decrease in average density of the agglomeration. The URBS PANDENS study has considered the consequences of »low density development« such as:

- **environmental consequences**: increased rural land consumption due to scale effects, increased energy use for heating (CO₂), ecosystem fragmentation;
- **economic consequences**: changes in the viability of local amenities, public services and retailing, increased public costs for infrastructure investments and maintenance;
- **social consequences**: greater amount of living space, weakened sense of community, increased distance from the centre to the rural edge).

In addition, changes in density affect life quality in various ways. In particular as people spread out their place of living through an entire region, children are going to school in one place, having friends in another, and are joining sports clubs in again another locality, there is the loss of urbanity and 'sense of place'.

The effects and consequences of urban sprawl with regard to the **conversion of land into urban use** can again be classified along the three dimensions of environmental, economic and social effects.

- **environmental consequences**: conversion of land with a destruction of natural habitats, a general deterioration of landscapes, surface sealing with impacts on runoff and possible floods, pollution (air, water, ground, noise, light);
- **economic consequences** include increase of land value due to conversion and development, increased »hope« values and speculation on adjacent rural land, changing local tax revenues, requirements for infrastructure investment.
- **social consequences** are the urbanisation of the countryside with increasing economic activity, changing social values, potential social conflicts between the new and the old residents.

Some problems are commonly more severe in one urban area and lesser in another. For example, in urban areas with sprawling second homes (such as Stockholm, Vienna, Ljubljana, Athens) the problems that arise are mainly associated with public infrastructure

such as insufficient water supply, sewage, social services and public transport. These issues are not frequently cited as problems in declining regions (Liverpool, Leipzig). Here the problematic consequences of sprawl are more likely to be physical degradation and vacant land and housing in the inner city with little economic pressure for investment or improvement. Some problems, such as *environmental consequences and surface sealing* are more common among these sprawling cities. In the course of URBS PANDENS study, the causes and consequences (effects or impacts) of urban sprawl are culturally diverse and even contrasting, and also in constant interaction with each other and with the phenomenon of urban sprawl, since a cause at one time may become a consequence in another. It appears that some of the consequences of sprawl become causes of future sprawl. In general, the relationship of amenities such as schools and transport to urban sprawl has been both a cause and a consequence in different urban areas and historical periods, thus »deconstructing« dualism. There is also the ambivalence of causes – for example, criminality may create urban sprawl in Liverpool, but it certainly discourages sprawl in Athens, where free-standing country homes are frequently raided by petty criminals.

7. Policies for the management of urban sprawl

Urban sprawl has been a matter of policy and planning ever since it has been acknowledged as a particular pattern of spatial development. The desire to control the dynamics of urban sprawl was one of the earliest motivations for state intervention in spatial development. Nevertheless, there is a remarkable consensus between different European countries and societies and between different levels of government about the overall aims of policy with regard to urban sprawl. The need to control urban sprawl and develop more compact cities is generally accepted by governments across Europe. *Policies for the control of urban sprawl consider what should be the aims of future policy in the context of the need for sustainable development.*

As early as 1990 the European Commission *Green Paper on the Urban Environment* called for the avoidance of urban sprawl and strategies which emphasise mixed use and denser development. After almost a decade the *European Spatial Development Perspective* (1999) recommended that EU member states and regional authorities should pursue the concept of the »**compact city**« in order to have better control over further expansion of the cities within a regional context. For this purpose **co-operation** between the central city and the surrounding areas must be intensified with new forms of reconciling interests on a partnership basis. It is generally accepted that policies to control urban sprawl need two elements: the **discouragement of sprawl and the encouragement of urban revitalisation**. Traditionally the discouragement of urban sprawl has relied heavily on the regulation of peripheral development through land use zoning and the prohibition of peripheral development through instruments such as the 'green belt' or protection of agricultural land from conversion to urban uses. The encouragement of urban revitalisation is a newer planning instrument, but since the 1970s a variety of mechanisms have emerged, as locationally specific development subsidies or tax-breaks, relaxed planning controls, and the creation of special agencies to promote the urban revitalisation process. Therefore, a variety of new policy responses to urban sprawl are now being developed across Europe, such as:

- introduction of regional planning agencies which can apply a strategic vision and control the competing development demands of local authorities;
- urban revitalisation schemes aiming to re-establish the attractivity of the inner urban areas;
- changes in land taxation laws to achieve environmental goals such as reduced surface sealing;
- more restrictive planning rules such as the "urban growth boundary";
- new legislation on public financing that reduce the dependence of municipalities on their local tax base;

- road-pricing schemes to make road users aware of the socio-environmental costs of commuting.

It seems appropriate to classify these various strategies and instruments that reflect the nature of the approach being used. A common approach to policy analysis is to divide public policies into those concerned with **regulation, spending, taxation and subsidy and advocacy**. Adopting and slightly modifying the Bengston et al. (2004) and Razin (1998) approach the URBS PANDENS study also propose a three-part classification of existing and potential policy responses. Such classification is based on ideal **»archetypes«** as a result of the in-depth analyses of seven urban case studies within the URBS PANDENS study. In reality policy responses are frequently complex combinations of approaches that are integrated, complementary and mutually supportive towards achieving common aims (Couch, Leontidou, Petchel-Held, 2007).

Table 3: Policy types with regard to the control or amelioration of urban sprawl

Policy type	Examples of policy
Regulation	<ul style="list-style-type: none"> - Spatial (land use) planning - Restrictions on specific land uses - Density controls - Phasing and »sequential testing« (UK)
Economic intervention: direct investment, taxation or subsidy	<ul style="list-style-type: none"> - Provision of infrastructure: transport, utilities and social facilities - Subsidies towards urban regeneration - Development taxes - Property taxes - »Trading« in development permits
Institutional change, management and advocacy	<ul style="list-style-type: none"> - Size and function of municipalities - Special agencies for urban revitalisation - Advocacy, partnership and policy dialogues - Information, targets and »league tables«

Source: Couch, Leontidou, Petchel-Held, 2007.

The overview of policy responses to urban sprawl in Europe has shown that there exists a wide range of strategies and instruments that are employed in order to get sprawl under control. These strategies and instruments share many basic features, however different they may be in detail due to the peculiarities of the respective legal system. Many of these strategies and instruments are often not implemented, or do not work well in particular situation. The complexities of the sprawling processes in which these instruments are to intervene make it difficult to assess the effectiveness of policy instruments. The differences between national planning systems stem from both variations in national legal and institutional structures and administrative and professional cultures (see Newman and Thornley, 1996). Hence, the »European way« to cope with urban sprawl seems to be more heterogeneous than the »manageable« differences may indicate. Not only the legal framework in which policy has to respond to urban sprawl is important, but also the context of informal institutions and cultural habits that are deeply embedded in a particular region's political history. The »disjointed incrementalism« in the past debates of planning theory becomes again tangible here as an outcome of the cultural framework in which planning is taking place rather than a general attitude of policymakers or planners towards urban sprawl. Therefore, different types of urban sprawl in Europe are both an outcome, but also a determinant of the planning culture into which they are embedded, such as:

- The 'planning vacuum' in the post-socialist cities

A major lesson of post-socialist transformation in Eastern Europe has been that the rapid transformation of formal institutions did not bring the intended results immediately. The

implementation of new instruments was rather obstructed by the inexperience of authorities and, at least to some degree, the lasting influence of informal institutions that had been shaped during former decades. In terms of spatial planning this resulted in a kind of »planning vacuum« in 1990s which was aggravated by the fact that urban planning was neglected because of the priority being placed on macro-economic reforms, economic regeneration and the connotations of such planning with the former socialist regime (Pichler-Milanović, 2001). In this situation it was often easy to get building permits in 1990s that did not comply to respective local development plans from 1980s. Only at beginning of the 21st century the understanding spread again, that spatial development needed regulation and control (Hamilton, Dimitrovska Andrews, Pichler-Milanović, 2005).

- The 'unenforceability' of planning in contexts of unprecedented growth

Particularly in Southern Europe many major cities, such as Rome, Madrid and Athens, experienced a period of rapid development and growth in the second half of the 20th century. Much of land was built by people who migrated from the rural areas and *ex-post* legalised the property (Leontidou, 1990, 2006).⁹ The urban sprawl was hardly steered by policy interventions, as the legal systems were not enforced. Land was developed despite existing development plans forbidding urban use. The planning culture hardly drew on the policy instruments discussed above, and it was characterised by the political processes that took place beyond the established public decision-making. The situation is similar in the case of recent *ad-hoc* large infrastructure provision in Leipzig at the beginning of 1990s and in Athens for the 2004 Olympics.

- 'Compliant' urban planning in declining cities

The situation in declining city regions is rather ambiguous: there is less pressure for the development of urban land but in a context of decline, the political pressure to welcome every investor and every kind of development, with limited regard for environmental impacts, is particularly high. It is less likely that the aspiration to control urban sprawl will be enforced as strongly in urban area experiencing decline like Liverpool and Leipzig - as in a more prosperous region like Stockholm or Vienna, with the well-defined and respected planning cultures (Couch et al. 2005).

These three different types of policy solutions towards urban sprawl give evidence for how dependent on the respective planning context is the success of policy responses to urban sprawl. Spatial planning systems and the regulation of land use are being strengthened across most of the EU, and supported by stronger requirements for the environmental impacts of prospective development before planning permission is given. These changes are likely to slow down the rate of sprawling in most European countries. On the other hand, some urban areas are under extreme growth pressures, and it is difficult to see how such pressures can be accommodated entirely within existing urban boundaries, without raising densities and distorting land use patterns to the point where such changes become socially, environmentally and politically unacceptable. This raised questions about **maximum acceptable urban density and acceptable urban form**. Here the answers are likely to be culturally and locationally specific. In urban areas with population and economic growth there will be some sprawl but it needs to be controlled, managed, and steered to the most acceptable locations. A more difficult question is how to control the urban sprawl that occurs through the acquisition and conversion of second homes. Here land use planning seems less helpful, since the use of buildings may not change. Regulations preventing or controlling second home ownership are difficult to devise and enforce both for moral philosophical and practical political reasons. In these circumstances policy makers are more likely to look to the tax system to influence consumer behaviour.

⁹ Similar processes of uncoordinated rural-urban migration could be observed in some Eastern European urban areas from 1960s-1990s, showing that socialist planning systems used to be a kind of stronghold of comprehensive development, but there were also investment constraints mainly in housing and infrastructure provision that prevented policy implementation.

Similarly, changes to the size and competence of local authorities may also have benefits in broadening the local tax base, reducing dependence on a small number of developments, whilst increasing the capacity of local authorities to make and enforce effective planning policies. However, such major structural changes are complex and whilst strengthening planning policy, may have costs, such as the loss of local democracy and control. The provision of infrastructure ahead of development is another field of policy where the likely impact on development pressures must be predicted and accommodated in policy. There is much to be gained through the use of 'soft' policy instruments, i.e. informing and educating policy makers, developers and households in ways that shift expectations and desires and change the cultural view of town and country. Therefore the combinations of a set of policies are important: ***stronger land use planning and development control, powerful subsidies to urban revitalisation, changes to systems of local taxation and administration, and careful planning of infrastructure***. Urban sprawl can be contained and European cities may move towards an urban renaissance and more sustainable urban development.

8. Urban Sprawl in Europe: sustainability, cultures of »(anti)urbanism« and »hybrid cityscapes«

The URBS PANDENS study found that despite the universal negative connotations about urban sprawl, as a global phenomenon and a process of urban change, it is also affecting different cities in a different manner and in different stages of urban development. However, though sprawl used to be an American research and policy topic, a revival of interest indicates the new dynamics of urban sprawl in Europe (Phelps et al. 2006; Bruegman 2005; Hoggart, 2005; Richardson, 2004; EEA, 2006). Besides important differences between Europe and the North America, there are also intra-European variations in urban sprawl because of the great diversity in ***urban cultures*** in space and time. In trying to compare patterns and the processes of urban sprawl, the URBS PANDENS study have opted to depart from models seeking homogeneity and universality of causes and consequences, while at the same time avoiding the evolutionist perspective such as the urban life cycle model that somehow stereotypes Southern European and Eastern European cities as lagging behind. Rather than looking solely at economic growth as explanatory variable, the study also focuses on ***»cultures of (anti)urbanism«***, underlining a contrast between *Northern »anti-urbanism«* and *Southern »urbanism«* (Couch, Leontidou, Petchel-Held, 2007).

After the industrial revolution, the perceptions of cities as "spaces of risk" prevailed in British and some other European cultures, and the escape to the countryside was sought by those who could afford it (Fishman, 1987; Schorske, 1998). By contrast, Southern European - *Mediterranean* - societies have portrayed cities as spaces of virtue, attraction, culture and creativity, and the affluent social classes chose to live closer to the historic core (King et al., 2001; Leontidou 1990, 2001). Further, the comparative analysis within the URBS PANDENS study revealed a triplet of contrasts discovered in the course of research:

1. ***Cultures of urbanism in Southern Europe*** have created compact cities in combination with *infrastructure-related* urban sprawl after long periods of informal suburbanisation as a means to survival (e.g. Athens);
2. ***Cultures of anti-urbanism in North-West Europe*** created *lifestyle-related* urban sprawl, by the elites and middle classes wishing to escape dense inner-city areas by moving to the countryside (e.g. Liverpool). More affluent residents of Vienna and Stockholm are recently moving to their second homes in rural areas due to increase of tourist and entertainment industry, traffic congestion, and crime in inner-city areas.
3. ***State controled /induced sprawl in Central and Eastern Europe*** has *deconstructed* the compact city/ pastoral landscape dualism through the development

of new suburban landscapes, which are usually not only residential after 1990s (e.g. Leipzig, Ljubljana). The role of central and new local governments (municipalities, regions) with regards to the sprawling process varies between and within Central-East and South-East European societies (e.g. illegal sprawl).

These types of cities in *North vs. South vs. East Europe* involve several urban formations within each type. Beyond »urbanism« and »anti-urbanism«, there is a third concept, a phenomenon happening on the »outskirts, »city edges«, periphery, expanding the urban frontier and opening questions of »city limits«. These findings about **»hybrid landscapes /cityscapes«** are explained by both economic forces as well as cultures of (anti)urbanism in Europe, caused by intertwined socio-economic, political and cultural forces, but also some regularities and multiple interactions of forces, which produce infinite processes that create urban area as a »sprawling« formation (Whatmore, 2002). Though not necessarily representative, these seven case study urban areas illustrate spatial and temporal **heterogeneous trajectories of sprawl as a process of urban change** that also lie in the diversity of European geography, society, culture, politics, and history, which have to be taken into account when discussing urban sprawl in Europe. The approach to deal with this heterogeneity was to identify underlying similarities, and group the urban areas into major **»archetypical«** fields of sprawling processes. Therefore a small number of important **»archetypical« perspectives** on European sprawl were defined within the URBS PANDENS study to inform the views on causes, consequences and policy responses.¹⁰ These archetypical perspectives and an assessment of consequences are used as a starting point for discussion, and where possible, to give some more concrete recommendations for managing a **»sustainable sprawl«**, i.e. *a process of urban change which seeks to fulfil the needs of the actors demanding sprawl without inducing problematic consequences*. Due to the limited number of case studies in the URBS PANDENS study the *archetypes* identified should not be seen as systematically representative or comprehensively covering the whole of Europe.

- **Lifestyle-driven urban sprawl** (demand side) originated in Northern and Western Europe relates with pastoral utopias in cultural representations, especially in Stockholm, but also in Vienna and, somehow Ljubljana. Inhabitants of Liverpool and Leipzig also seek a better way of life away from congested inner-cities. This is especially evident with respect to demands for second homes at the urban periphery. In a number of European countries, second homes (e.g. weekend or summer houses, secondary residence, etc.) traditionally represent a major component of the way of living. Moving into second homes in rural areas during summer time, construction of new single family houses, and/or their conversion into permanent residences, increase pressure on the local environment, infrastructure facilities and services. The case study in Stockholm, Vienna and Ljubljana urban areas illustrates such trends. However, urban competitiveness since 1990s has revived »new urbanism« in the North. Their coincidence is noteworthy, and urban revitalisation – or i.e. *Mediterraneanisation of the North* – constitutes a major change in North-West European urban cultures coming to “converge” with sprawling patterns in Southern, Central and Eastern Europe. There is little evidence that either urban decline or re-urbanisation as such slow the process of urban sprawl.
- **Infrastructure-related urban sprawl** (supply side) in Southern Europe and across the Mediterranean, originally relates with urbanism i.e. ‘friendliness to the city’. Infrastructure-attracting urban sprawl in the (informal) suburbs of the post-Second World War Athens was followed by its opposite, infrastructure-driven urban sprawl,

¹⁰ The URBS PANDENS project opted for the richness of detailed explanation that could only be obtained through detailed case studies and through the inputs and views of local experts and stakeholders, based upon an open framework of modelling and qualitative assessments.

which emerged at the turn of the 21st century. These have been the two facets of infrastructure-related urban sprawl. The Southern European urban model of the compact city was thus reproduced, despite informal and unplanned suburbanisation of the past decades. This pattern was reversed in Athens with major infrastructure investments in preparation for the 2004 Olympics, such as the new airport, metro line and other transport infrastructure in the Attica region that contributed to residential and commercial sprawl overflowing from the Athens agglomeration to east Attica region. The urban fringe shows a large population growth because of a close proximity to central Athens as well as modern infrastructure expansion in the past few years. This type of *investment-led infrastructure-related* sprawl has been recently visible in many other European urban areas in line with improving the competitiveness of the entrepreneurial city. This was visible especially in Leipzig where until mid-1990s urban sprawl was almost completely induced by investors from outside Leipzig and massively supported by public funding from Federal Germany and public-private incentives (e.g. infrastructure, housing, commercial, etc.). Vienna and Ljubljana have been also experiencing suburbanisation and residential and commercial sprawl since mid-1980s due to improvements of infrastructure in metropolitan areas while in Warsaw more intensive urban sprawl has been deferred due to difficulties of daily commuting and inefficient metropolitan transportation system.

- **Regulation-related** suburban areas did not experience marked sprawl in post-socialist Central-East Europe in 1990s, with an exception of Leipzig. All three case study cities also focus their efforts on urban revitalisation and protection of heritage in inner-city areas. The situation is different in many Balkan cities where sprawl was significant at the city periphery due to lack of regulation at the national and local level. In Central and Eastern Europe the most significant ex-urban »hybrid« landscapes are characterised by commercial developments in traditionally (semi)rural areas, such as new shopping centres, enterprise zones, logistics, warehouses, etc. One interesting feature is also the coexistence of low- and high-density residential areas. High-rises estates at the city periphery of Leipzig, Warsaw and Ljubljana are to an extent a heritage of socialist times, but now housing is privatised and can be expensive depends on the location, quality and social structure of the neighbourhood. The coexistence of new multi-dwelling housing developments within sparsely settled villages with traditional single family houses on the urban fringe deconstructs the widespread dualisms of “compact (urban) vs. pastoral (rural)” landscapes, and establishes the uniqueness of new East European suburbia. In 1990s Leipzig, Ljubljana and Warsaw were in transition from a planned to a market economy, with different role of the central and local governments and land use instrument in the sprawling process that has had different effects on local economies, sprawling patterns, and the environment. Hence, Central and Eastern European cities, also combine cultures of urbanism, re-urbanisation with (un)controlled suburbanisation and sprawl.
- **Sprawl in declining** urban areas is another significant phenomenon of urban sprawl in Europe. Liverpool and Leipzig are examples from the URBS PANDENS study that experienced a substantial loss of population in both inner-city areas and at the city periphery during the last decades of the 20th century, yet concurrently experienced urban sprawl. This loss of population brings about specific issues associated with urban sprawl, which are quite distinct from urban areas with growing population and economic power. The past has shown that efforts to attract (and subsidise) industrial investors and to develop large infrastructure facilities with public money, which have been undertaken in both cities, could not stop – let alone reverse – the decline. Besides, since most of these investments have been located on the urban periphery they often have changed the functional structure of the urban space to the further detriment of the inner city. Hence, urban policy making and planning will have to

concentrate on urban revitalisation and re-urbanisation policies that are currently taking place in both Liverpool and Leipzig (Couch et al. 2005).

The contrast between cultures of *Southern urbanism* and *Northern anti-urbanism* in the past, and the emergent culture of “*new urbanism*” spreading from Southern and Central Europe to the North during the recent period of urban competition, reveal new kinds of differences and a broad range of issues which can probably also be found in and around many other European cities. Throughout the 20th century, *Mediterranean cultures of urbanism and urbanity* have usually led to compact cities, which is also to be found in Vienna, Paris or Berlin. The preference of more affluent social classes for the city centre has reproduced its gentrification, and poverty around the city, which means that *suburbia* as a desirable way of life should not be taken for granted. By contrast, Anglo-American inner-city poverty has been reproduced by cultures of anti-urbanism, which also affected sprawl by middle and upper classes, sought by pastoral lives in homes adjacent to the city in the countryside (Atkinson and Oleson, 1996). These contrasting North/South urban cultures have been modified since the post-socialist transition and by new property developments caused by urban competition since the end of 1980s. Neo-liberal entrepreneurialism and the commodification of more economically advanced cities are combined with »new urbanism« policies which are also in harmony with the EU approach promoting the compact city and sustainable anti-sprawl policies, and strategic urban development by public-private partnerships for competitive but also sustainable cities, that also emerge easily and smoothly across Europe.

The ***coincidence of re-urbanisation with urban sprawl***, represents the »***glocalisation***« of the cityscape (Beriatos et al. 2004). This constitutes one of the most important changes in European urban development over the past two decades, and opens up a new theoretical debate about »***urban convergence***«. This has been described as »***Mediterraneanisation of the North***« when well-off social groups return to urban living from sprawling suburbs and re-discover street life, outdoor cafes, and compact cities in gentrifying European inner-cities (Bailly et al. 1996, Craglia et al. 2004). The urban periphery also benefits from this regeneration process, mostly as a place for innovative design, especially in connection with international events and public places (e.g. airports, sport and leisure centres, etc.) These experiences all exemplify ways in which, in post-modern times, *Southern* urban cultures have profoundly influenced and literally penetrated the *Northern cities*, while wealth and life style driven »*Americanisation*« of suburbanisation has influenced recent development trends in Central, Southern and Eastern European cities. These new lines of ***convergence*** among European cities stimulate interesting reflections about the future of urban sprawl Europe.

Conforming to the international bibliography and anti-sprawl policies, the URBS PANDENS study raised questions about sustainability, and the compact city. Among researchers »hybrid landscapes/cityscapes« have been considered *unsustainable* in a long run, recognising the overall quality of life in European cities. Some aspects of urban sprawl are no more unsustainable than some *novelties* in inner-city redevelopment, like new modern skyscrapers by design architects that has little to do with preservation of the cultural heritage and local identity (Johnson and Klemens, 2005). Urban sprawl in Europe is increasingly balanced by urban revitalisation in the context of urban competition, and *Mediterraneanisation* rather than *Americanisation* of European cities. This *urban renaissance* takes advantages of, and valorises the very diversity of European geographies, built heritage, and cultural traditions. Around them, »*hybrid landscapes/cityscapes*« are created as a mode of (ex)urban uneven development. The diversity of urban cultures in space and time affects the urban periphery, so that it is difficult to speak about unique European urban sprawl, despite recent similarities of new “hybrid city(land)scapes” in European cities. We can speak of Anglo-American and North-West European variations of urban sprawl, of Mediterranean, Scandinavian and Central European or Balkan variations, of North African, Middle Eastern, or South-East Asian urban sprawl, but even using these terms we have to be

cautious, not only because they are inwardly so diverse, but also because of the multiple spatial and temporal explanations of sprawl, which differ in each and every city, objectively and inter-subjectively, among different social classes and interest groups.

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