

**Containing urban sprawl?  
Comparing brownfield reuse policies in England and  
Germany**

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## ***Abstract***

Containing urban sprawl and limiting greenfield developments has become an important aim of land use planning policy over recent decades. Traditionally planning instruments such as greenbelt designations and restrictive development controls have been used to achieve this aim. Beyond that in recent years the systematic reuse of brownfield land has become an important policy objective, which could in turn ease the pressure to develop on greenfield land. The aim of this paper is to identify factors explaining differences in the success of such strategic brownfield reuse policies in England and Germany. To do this the paper explores the underlying spatial development paradigms in both countries as well as differences in planning policies and institutional settings.

## ***Introduction***

In Europe brownfield regeneration is a concern for planning and regeneration policy in many countries, though there are variations between jurisdictions in both the definition of brownfield land and the extent to which it is seen as a strategic development resource (Grimski and Ferber, 2001, Thornton et al., 2007). Only for a few countries, namely the UK, France, Germany and Belgium, brownfield land and brownfield regeneration has been identified as a national policy issue, with targets and specific instruments to promote the reuse of land in place or in the process of being developed (Syms et al., 2003). This paper focuses on two of these countries, England (as part of the UK) and Germany. At the first glance the policy approaches in both countries

are quite similar, as both have developed a national policy for strategic brownfield reuse (Ganser and Williams, 2007). But as will be shown below there are marked differences both in the effectiveness and efficiency of these policies. This paper aims to identify factors that can explain these differences.

To do this, the following section provides an overview of the existing evidence base for assessing the extent and ratio of brownfield and greenfield settlement development in both countries. The subsequent sections of this paper discuss the main underlying spatial development paradigms and planning policies as well as differences in governance structures as potential factors explaining the differences in the success of strategic brownfield reuse. This is mainly based on a comparative review of statutory planning documents and exemplary literature illustrating the differences in planning paradigms.

### ***The evidence base***

The main official statistics in both Germany and England used to monitor the change of land-use are based on information obtained through the regular monitoring and updating of the national cadastre and mapping agencies. In England this is the Ordnance Survey. Its continuous map revision process is used for the land use change statistics (LUCS) for England which are regularly published by the Department for Communities and Local Government. The main figure used for the monitoring of planning policy from these statistics is the proportion of new dwellings built on previously developed land. According to the most recent report this figure has risen from 57% in 1996 to 77% in 2007, while the provisional estimates for 2008 are 79% (CLG, 2009b).

The other important figure is the density of new residential developments which has risen from an average of 25 dwellings per ha in 1996 to 41 dwellings per ha in 2006 and as a provisional estimate 44 dwellings per ha in 2008 (CLG, 2009b). Both figures indicate that the land-reuse policies in England both in terms of their efficiency and effectiveness have proved to be successful.

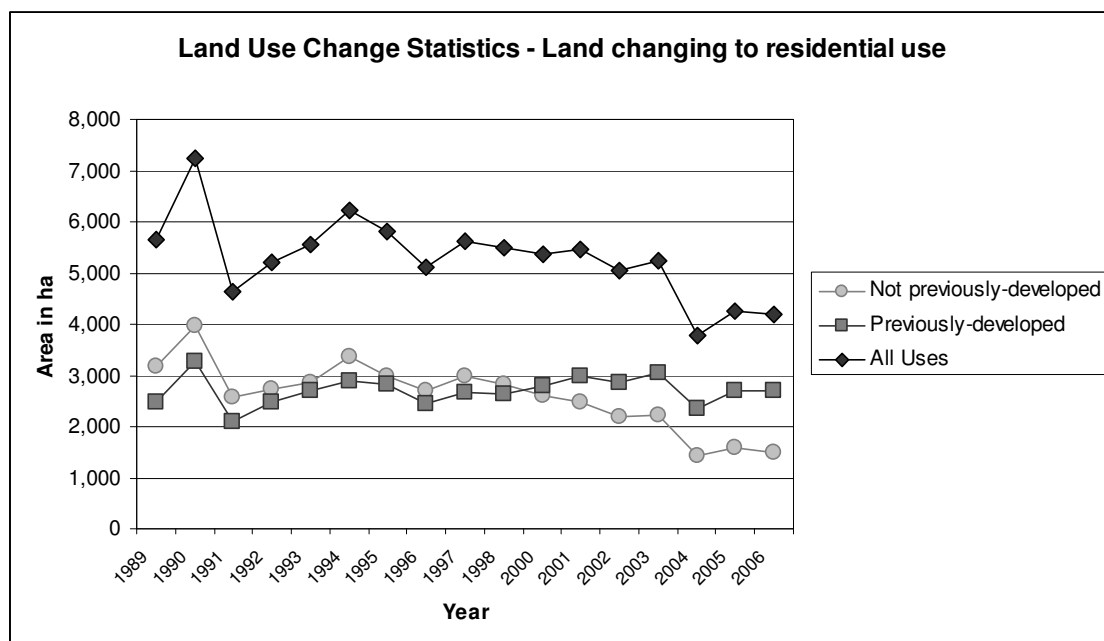


Figure 1: Land changing to residential use, based on figures from the Land Use Change Statistics

A more detailed investigation of the absolute figures of land changed to residential use (see figure 1) shows that the rising share of brownfield land developed for residential use since 2000 is mainly caused by a strong decrease in residential development dynamics on greenfield (not-previously-developed) land while the absolute annual figures for residential development on brownfield (previously-developed) land remain on similar

levels compared to the 1990s. In Germany official land use statistics are based on data from the Liegenschaftskataster of the local authorities, which has some similarities to the Land Registry for England and Wales. Initially the legal base for these statistics was the Agrarstatistikgesetz (agrarian statistics bill) which still requires the production of a report every four years. Since 2002 more frequent annual statistics have been published specifically for the Siedlungs- und Verkehrsfläche (settlement and transport areas) (Siedentop and Kausch, 2004) to allow a more regular monitoring of urbanisation processes and to assess the extent of urban expansion. These figures are published by the Statistisches Bundesamt (Federal Statistical Office of Germany) and are also part of the laufende Raumbewertung (continuous spatial monitoring) of the BBSR (Bundesinstitut für Bau-, Stadt- und Raumforschung - Federal Institute for Research on Building, Urban Affairs and Spatial Development). There is a notable difference to England where the policy focus of monitoring is on the share of new dwellings on previously developed land as described earlier, while in Germany the main figure from the land use statistics used in the political and planning debate is the absolute growth of the settlement and transport area. From 1993 to 1996 this growth rate was in average 120 ha per day, from 1997 to 2000 129 ha per day, from 2001 to 2004 the rate was 115 ha per day and from 2003 to 2006 the figure was 113 ha per day. Both the English LUCS and the German SuV statistics have some shortcomings as they include small scale scattered open space such as gardens, allotments or green areas along transport corridors into what is defined as an urbanised area. Related to

this Siedentop et al (2007) argue that the German land use statistics merely follow a simplistic quantitative approach and are hence 'blind' regarding the varying qualities of different areas. For example they do not take into account the varying ecological quality of green space nor do they reflect varying extents of sealing of the soil surface or varying soil qualities. Another limitation is that in terms of the spatial planning dimension of urbanisation, the location of new settlements in relation to existing settlement cores and infrastructure networks is not taken into account in these aggregated land-use statistics. This lack of differentiation is also a potential problem for the target driven approach in approach in England. The target of providing at least 60% of housing on previously developed land is monitored by LUCS but this does not take into account where, in which physical form and in which spatial context, land reuse takes place. Furthermore the English approach of an aggregated statistics does not consider where and in which form/context the "other" maximum 40% of urban expansion takes place.

A second important evidence base for identifying brownfield land location and supporting brownfield regeneration in England is the so-called National Land Use Database of Previously Developed Land, abbreviated as NLUD-PDL. It lists the location, size and various other features of vacant land or derelict land and buildings in England. The database is based on annual reports by local authorities. The main purpose of this database is to assess the future re-development potential of previously developed land and to provide a differentiated inventory of brownfield land. It allows spatial focusing of

redevelopment and regeneration on those areas and regions with the greatest need. Furthermore it is an important evidence base for the implementation of the English National Brownfield Strategy and the subsequent Local Brownfield Strategies (English Partnerships 2007). A comparable nation-wide database specifically for previously developed land does not exist for the whole of Germany, though some cities and regions maintain so-called Brachflächen- und Baulückenkataster (brownfield cadastres).

Both the English LUCS and the German SuV statistics can provide an idea of the land-use change and extent of urban sprawl in the national context while the specific brownfield cadastres such as NLUD-PDL are useful tools for systematic reuse strategies and monitoring brownfield stock and reuse dynamics over time. Yet to compare the situation and the dynamics of change in both countries requires a common data source. The CORINE land use data which is based on satellite data from the years 1990 and 2000 offers this possibility. A study by the European Environment Agency using CORINE data differentiates the following types of regions in Europe where sprawl takes place. First there are areas of high population density and economic activity, such as southern and western Germany or Northern Italy. Secondly there are regions of rapid economic growth, such as Eastern Germany or Ireland. Thirdly there are already highly populated coastal strips, such as some coastal areas in Spain (Uhel, 2006). In a study titled “Nachhaltigkeitsbarometer Fläche” (sustainability barometer land use) investigating key regional indicators for sustainable land use, Siedentop et al

(2007) further explore the potential of this data for comparing the development of land use for the whole European territory. As part of this, the study provides a brief comparison between Germany and the UK comparing the land 'consumption' during the 1990s. The main finding is that the absolute settlement expansion between 1990 and 2000 was about 4 times higher in Germany compared to the UK. The settlement area in the UK grew by 30597 ha over those 10 years while the settlement area in Germany grew by 174393 ha over the same period. In relation to the existing settlement area this was a 6.7% growth in Germany, while the settlement area in England grew by only 1.8%. Partly this strong difference in growth rate can be explained by the unique conditions of the post-socialist transformation during the 1990s in Eastern Germany (Nuisl and Rink, 2005) where in many city regions a 'catching up' of sub- and counter urbanisation took place. Yet this growth of settlement area can also be observed in many parts of Western Germany.

A more recent detailed analysis of the CORINE dataset (Fina and Siedentop, 2008) shows that in Germany strong growth rates can mostly be observed in rural areas that are less than 10% urbanized (villages and small towns), while in the UK the medium and high growth rates can be observed in areas of medium to high existing stock of urbanization. Furthermore this analysis shows that the average distance of new settlements towards cities with more than 100 000 inhabitants is 30 km in Germany while it is 23 km in the UK. This illustrates that new urbanisation in Germany reaches far into lower density rural areas, while in the UK it is located nearby existing larger urban areas,



showing the relative success of the urban containment policy as well as attempts focus urbanisation nearby urbanised areas. When interpreting these figures one should take into account that this analysis shows the dynamics during the 1990s. The more recent impact of systematic reuse policies of previously developed land and the wider urban renaissance agenda in England might result in an even lower urban expansion rate in the UK as a larger part of development takes place on previously developed land with an increased density, while the overall amount of urbanisation was decreasing since the mid 1990s as shown earlier. The following sections identify potential reasons for this strong difference in the extent of urban sprawl and success of brownfield reuse policy, starting with investigating the underlying principles and cultural differences of spatial planning between both countries.

### ***Underlying spatial development paradigms***

To understand the causes for the marked differences in effective brownfield reuse and urban containment between England and Germany it is useful to reflect on the various spatial development ideals that shape the way space is used and planning policy is practised in both countries. One of the key paradigms for spatial development in England has been the urban containment policy introduced in the late 1940s aiming at containing urban expansion and reducing greenfield development (Hall, 1974, Millward, 2006). In the introduction to a publication about peri-urban areas in Europe Keith Hoggart describes this as follows: "In the UK the intermingling of land-uses identified here is less common, as the land-use planning system keeps

vigorous check on the incursion of 'urban land-uses' into 'the countryside' " (Hoggart, 2005, p 5). On the one hand this policy reflects a great appreciation for the countryside in British culture and a way of protecting this cultural landscape from urbanisation (Davoudi and Stead, 2002). Beyond the formal dimension of the land use planning system, lobby groups such as the "Campaign to Protect Rural England" support these policies to protect rural areas from urbanisation. More recently the urban renewal and regeneration agenda (DETR, 2000, Urban Task Force, 1999) can be linked to the idea of urban containment while the green belt still exists with significant public support (Jonas and Gibbs, 2003). This is despite recent debates about a more differentiated approach towards planning in the rural-urban fringe replacing the simplistic greenbelt concept (Gallent et al., 2006). To sum up, the control over urban expansion is much stricter in the UK, specifically in England, compared to other European countries.

While in England the dominant principle of spatial policy during the last decades has been to contain urban development and to strictly separate urban and rural areas, the spatial development principles in Germany have been somewhat different. The strategic "spreading" of development into rural areas and at the same time balancing different interests in using space has been one of the key guiding principles of the German Raumordnung (large scale spatial planning policy) over recent decades. On a large spatial scale this is also reflected in the Grundgesetz, the German Basic Law, which refers to the aim of *gleichwertige Lebensbedingungen* (living conditions of equal

value) in §10 (2), and in the fact that peripheral rural areas are referred to as *strukturschwach* (structurally weak) and the spatial policy would focus on supporting development in those areas. The initial *Raumordnungsgesetz* (land use planning act) from 1965 put a lot of emphasis on this principle, while the most recent update of the legislation puts more emphasis on environmental issues.

In addition to these large scale spatial planning concepts of *Raumordnung*, the concepts of urban containment and compact cities have certainly some merit amongst many urban planners in Germany (Wentz, 2000). A focus on urban cores and qualities of urbanity stems from the architecture and design tradition in the urban planning profession (Fürst et al., 1999). So many urban planners would be advocates of controlling and limiting urban expansion quite similar to the policy in the UK/England. The reality though in many German regions over recent decades was and is somewhat different, as shown earlier. From the perspective of the established paradigms of urbanity and compact cities, the process of urban sprawl, an equivalent German term is “*Zersiedelung*”, is a something to be avoided. Yet due to the fact that there was a strong mismatch between spatial development ideals of contained growth and compact cities and the spatial reality of extensive sprawl and counter urbanisation, a number of planning theorists were searching for alternative approaches. An example is the provocative idea of *Zwischenstadt* (Sieverts, 2003) originally published in German in 1997 or “periphery is everywhere” (Prigge, 1998). These are attempts to shift the focus of urban and

regional research and planning away from the compact centres of cities towards the periphery, the spaces in between cities and towards the fringe between urban and rural spaces where a large part of urbanisation has been taking place over recent decades. These new approaches are also a call towards the planning profession to accept and plan for rather than reject the processes of low-density and often car-based urbanisation and to initiate a debate about visions for these spaces on the edge and in-between cities, as often these areas seem to be forgotten by current planning debates. In the context of this debate, the German equivalent for urban sprawl, “Zersiedelung”, has been criticised as a rather vague concept by advocates of a more open attitude towards spatial development as tending to judge a spatial process instead of merely describing and understanding it (Hesse and Kaltenbrunner, 2005). Apart from the debate about the Zwischenstadt phenomenon there have been a number of other key planning debates in recent years in Germany, such as the “shrinking cities” debate (Oswalt, 2005) discussing how cities can cope with the process of depopulation which can be the other side of the coin of counter urbanisation and urban sprawl. The planning discourse both amongst academics and practitioners in England has not yet seen a similar theoretical discussion about late-modern urban structures. One reason might be that, as illustrated earlier, planning policies have been very successful in containing urban growth.

### ***Planning and governance systems***

Apart from the variations in spatial development paradigms, the different success rate in containing urban sprawl and reusing brownfield land can also be explained by differences in the statutory planning systems and the structure of local, regional and central governance.

#### *Main elements of the statutory land use planning systems*

The core of the statutory German land use planning system is the Bauleitplanung, consisting of the Flächennutzungsplan (land use plan for whole area of a local authority) and the Bebauungsplan (legally binding land use plan). The right to built on land is either granted as part of a Bebauungsplan which is usually a larger project of urban expansion or on vacant plots/sites inside the existing built environment. Above this level of local authority planning there is the Regionalplan and the Landesentwicklungsplan (state development plan), although there are some differences regarding this between the various Länder. In addition to this there is the Landschaftsplanung, which is in some Länder part of the Bauleitplanung and in other Länder a separate set of plans.

A core component of the English planning system is the development control, where on a case-by-case basis planning permissions are granted or refused for individual development proposals. These decisions are based on the contents of the land use plans as well as on the policies set in planning policy guidance and planning policy statements. Over recent years this discretionary English land use planning system became more similar to the

comprehensive German system. The Planning and Compulsory Purchase Act 2004 introduced Regional Spatial Strategies, which replaced the Regional Planning Guidance. These are now being replaced by integrated Regional Strategies, including economic development. On the level of local authorities there are unitary development- and local plans, which are now being replaced by Local Development Frameworks.

*Instruments and policies regulating urban expansion and brownfield regeneration*

The main legislative base defining the planning system in England is the Town and Country Planning Act from 1990, though different to the German system the key principles of spatial planning are defined in a separate set of national planning policy guidance documents (PPG), gradually being replaced by new planning policy statements (PPS) covering various planning themes. Regarding the regulation of urban expansion and regeneration of brownfield land there are two documents worth mentioning. With PPS 7 there is a specific set of planning policies for rural areas. This is a key difference to the German system, where there is a much less rigid differentiation between rural and urban areas, and hence no comparable set of planning policies for rural areas. Amongst other aspects of rural policy, PPS 7 aims at preventing urban sprawl by giving priority to the re-use of previously developed land, and strict control of building development in open countryside away from existing settlements. In addition to this qualitative requirement PPS 3 covering the theme housing quantifies this further and sets the national target for reusing

previously developed land for housing to at least 60%, which is subsequently required to be translated into regional and local plans. Though the German policy framework does also contain a target, to reduce urban expansion down to 30 ha per day by 2020, it is much more complex to translate such an absolute target in regional and local planning policy.

One long established element of the English land use planning system is the greenbelt as a simple tool for containing urban growth. This greenbelt is designated around most major urban areas in England. In Germany this instrument does not exist, though the more differentiated Landschaftsplan as well as the Flächennutzungsplan do fulfil this role to some extent. In addition to this established form of controlling urban expansion, the sustainable communities plan for England from 2003 defined four so-called growth areas, located towards the East and North of Greater London where new residential developments do receive specific funding (ODPM, 2003). Following on from this, two rounds of growth points were announced that define areas of housing growth in each region of England (CLG, 2009a). Other spatially targeted policies of housing development include the Housing Market Renewal program and the Eco Towns initiative. A comparable top-down spatially targeted policy of housing development by central government does not exist in Germany.

Considering the extent of urban sprawl in Germany compared to England discussed earlier, one might expect that the German spatial planning and development control system does not contain any regulation or policy

regarding the containment of urban growth. Yet at least in theory the German Federal Building Code, which is the core document of the statutory planning legislation, requires since 1986 to consider a number of environmental concerns. Amongst others §1a states that land shall be used sparingly and with due consideration. The legislation also states that the extent to which land is sealed by development shall be kept to a minimum by reusing land, infill development and minimizing sealing of soil. Many of these regulations are linked to support the policy objective of “Bodenschutz” (soil protection). The focus is hence put less on wider spatial planning objectives but more on avoiding specific loss of soil functions, for example:

- “open” soil being a component of the natural environment,
- Protection of fertile agricultural land around urban areas,
- Ensuring ground water renewal and
- Temporary storage of rain water in case of strong rains.

A unique element of the German planning system is the BauGB §1a which contains a regulation to compensate “Eingriffe in Natur und Landschaft” (intrusions into nature and landscape). This compensation either takes place in the same spatial and functional context of the plan location, or it is pooled to allow landscape improvements on a larger scale and as a component of improvement of green infrastructure (Louis, 2007). While this regulation certainly contributed financially to an active development of landscape elements in and around cities, it can also be seen as an “Ablasshandel” (sale of indulgences) only partly compensating the loss of open soil and land.



As shown earlier, in practice all these environmental requirements in the §1a BauGB since 1986 did not prevent the continuation of extensive urban sprawl during the 1990s. As early as 1987 there have been calls for a so-called Flächenhaushaltspolitik (land budgetary policy) on a local and regional scale, aiming at reducing the amount of green space development (ARL, 2004). Yet during the 1990s the political focus was set on further urban expansion aiming at providing more people with the opportunity of building and owning a house, also a political reaction to a low home ownership rate. The 'Gesetz zur Erleichterung von Investitionen und der Ausweisung und Bereitstellung von Bauland' from 1993 aimed at easing investment, streamlining the planning process and increasing the supply of land for development (Krautzberger and Bernhard, 2007).

Throughout the 1990s there was a growing debate calling for measures to reduce the amount of urban expansion in Germany, mainly motivated by environmental concerns. Notably a report from 1997 of the enquete commission "protection of human beings and the environment" of the German parliament called for a reduction of settlement expansion to 10% of the rate of the years 1993-1995 until 2010 (Siedentop et al., 2007). Despite these early efforts it took until 2002 for the reduction of urban expansion to become an official political objective. The national sustainability strategy aims at a reduction of the rate of urban expansion to 30 ha per day by 2020 (Bundesregierung, 2002), a rate that is comparable to the current urbanisation rate in the UK. As a consequence the research network REFINA has been

investigating measures to reduce land consumption in Germany. Furthermore the policy framework has been updated in the form of a renewed federal building code. This updated BauGB 2007 contains some measures that aim at favouring the development inside urban contexts. Under the old legislation redevelopment on vacant plots, which include smaller sized previously developed land would automatically have development rights based on the §34 BauGB. Yet for larger scale vacant land inside the urban context the old BauGB required a full and much more complex Bplan process. To support the redevelopment rates inside urban areas the new BauGB now allows a simplified process without the requirement of a formal strategic environmental assessment for plans up to 20,000 m<sup>2</sup>. For sites from 20,000 m<sup>2</sup> up to 70,000 m<sup>2</sup> a simplified pre-test ruling out environmental impacts is sufficient. Also the Flächennutzungsplan (local authority wide land use plan) does not need to be formally adjusted in these cases. Furthermore for development sites up to 20,000 m<sup>2</sup> there is no need for compensation measures that compensate the intrusion into the landscape. The simplified planning process inside urban areas should make it quicker and hence economically more viable for investors to develop inside an urban context (Krautzberger and Bernhard, 2007).

#### *The institutional dimension*

Another important factor to consider when comparing different rates of brownfield reuse and urban sprawl is the difference in governance structure between England and Germany. England, as part of the UK, is still a much

more centralised country, where local authorities are indirectly governed from London, despite recent attempts of devolution and granting more powers to the local level. In Germany on the other hand local authorities have traditionally a far reaching right of independence, a self governance which is granted by the constitution, as laid down in the German Basic Law (Grundgesetz):

#### Article 28 [Self-Government]

“(2) The communes must be guaranteed the right to regulate, on their own responsibility, all the affairs of the local community within the limits set by statute. Within the framework of their statutory functions, the associations of communes have such right to self-government as may be provided by statute. The right to self-government also encompasses the foundations of financial accountability; part of this foundation is the communes` right to raise their tax shares according to local economic performance.” (Tschentscher, 2008)

Elected by the municipal voters the mayor and the elected representatives have the general responsibility to decide on all municipal matters. This encompasses the municipal sovereignty in terms of territory, finances, planning, staff, organisation and legislation. It is indicated in the Article 28 (2) 1 that this right can be limited by statute. Such laws are only constitutional, if they don't touch the core-area of self-governance and if they are compatible with the principle of the constitutional state. Hence any attempt of the federal

and Länder-level to influence local planning has to be carefully justified. This includes issues such as the regulation of land use and the limitation of urban expansion. The strong focus on municipal territory also derives particularly from the voting system and the financial system. The re-election of the representatives is in a high degree dependent on what the representatives contribute to the prosperity of the municipality and (therefore) to the satisfaction of the municipal voters. If there is a demand for new residential plots of (often detached) housing, then it is very likely that this will be provided via the local land use plans. In comparison local authorities in England have far less far reaching rights of independence. In terms of land use planning, the central government keeps a check on local/regional plans and planning decisions, by the requirement to follow national guidelines in developing regional and local plans, with the help of the central planning inspectorate. The Planning and Compulsory Purchase Act 2004 contains many regulations which grant the Secretary of State, representing central government, rights of intervention into both regional and local planning. This can mean that central government can force local and regional planning documents to be rejected, amended or revised. This power also applies to individual planning applications that can be called in by the secretary of state, to be changed if necessary. Beyond the immediate planning legislation there is also a set of 198 National Performance Indicators that are used by central government to monitor the performance of local authorities. This includes NI 170, measuring the previously developed land that has been vacant for more

than 5 years in relation to the total area of developed land. Many of these interventions of central government in local planning matters would not be possible in the current German system of independent local authorities. This also explains the slow process of policy implementation to achieve the 30 ha target, as many of the necessary measures need to be implemented in consensus with local authorities.

### ***Conclusion***

The main agenda of containing urban sprawl and reusing brownfield land does exist both in Germany and England. This paper shows that the centralised English governance system with more comprehensive planning instruments ensures that a target such as providing at least 60% of new housing on previously developed land can be implemented. Also a long-established spatial planning policy of urban containment in England using the instrument of green belts supported the success of this policy. Added to that, the unpopularity of new housing development in small towns and villages might contribute to the success of this urban containment policy. The German governance system on the other hand grants a lot of power and independence to the local authorities. As many communes benefit financially both from more residents and more industrial areas, there is currently only limited incentives to avoid and limit urban sprawl. Another factor to consider is that the attitude towards processes of urban sprawl and other forms of post modern urbanized landscapes is not as negative and much more diverse as one might be familiar in England, reflected in discussions about the Zwischenstadt phenomenon.

On the other hand, the British policy approach with its rather simple target-driven strategy might benefit from applying some of the approaches tested and applied in Germany with a more differentiated consideration of various forms of sprawl and a more detailed assessment of the environmental potentials and impacts. It remains to be seen in how far the recent policy initiatives in Germany will result in a significant reduction of urban expansion rates. The currently high rates of housing development on previously developed land in England on the other hand will most likely decrease in the coming years, simply because of the fact that less previously developed land is available.

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