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# HOUSING SUPPLY AND BROWNFIELD REGENERATION IN A POST-BARKER WORLD: IS THERE ENOUGH BROWNFIELD LAND IN ENGLAND AND SCOTLAND?

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## Abstract

The findings of the Barker Review, which examined the reasons for the undersupply of UK housing, have important implications for the devolved constituents of the UK, including Scotland. This paper traces the emergence of the brownfield regeneration policy agenda across the UK and examines how the Barker Review connects with this brownfield policy focus. The paper compares housing and brownfield policies and practices in England and Scotland, places them in an international context, and elicits wider lessons for devolved governance in relation to housing policy, in terms of ‘centrist-local’ tensions. Qualitative estimates, based on published data, suggest that Barker’s emphasis on increased housing supply cannot easily be reconciled with the current emphasis on brownfield development, but is likely to require a return to greenfield development in both countries.

## 1. INTRODUCTION

In the 2003 Budget, the Chancellor and Deputy Prime Minister jointly commissioned Kate Barker, a member of the Bank of England’s Monetary Policy Committee to produce an independent review of UK housing supply. Barker’s wide-ranging analysis of housing supply (Barker, 2003; Barker, 2004) concentrated on the reasons for under-production, and made a number of key recommendations. The review, which was heralded as the most important for housing policy in recent years (see Meen, 2005), recommended substantial increases in new housing provision in the UK to reduce long-run increases in house prices and improve affordability.

Given the UK Government’s strong emphasis on sustainable development, it was not surprising that Barker highlighted the central importance of brownfield regeneration in increasing UK housing supply. In recent years, the presence of brownfield recycling targets in England and Northern Ireland has been underpinned both by a wider commitment to a national sustainable development strategy for the UK and its devolved constituents, and by planning policy guidance, in which ever more prominence has been placed on sustainable development.

Although evidence strongly suggests that the four nations comprising the UK differ in terms of housing demand and supply patterns, (Council for Mortgage Lenders, 2005) Barker is often interpreted solely in a UK context. Yet, distinctions between constituent nations are prominent, especially in comparing England with Scotland.

The first part of this paper therefore traces the emergence of the brownfield policy agenda in the UK, setting this in the context of a wider, international focus on brownfields. It examines how the

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Barker review connects with the UK brownfield policy focus, and highlights the tensions that can exist between national policies and devolved powers (via a vis housing policy). Setting this discussion against the backdrop of the wider discourse on devolution and regional governance, the paper compares relevant policy and practice in England and Scotland. It then addresses the key question, namely whether Barker's emphasis on increased housing supply can be reconciled with the current commitment to brownfield development, or whether its delivery will require a return to greenfield dominance. Finally, the paper draws on policy comparisons and land use data in both England and Scotland to provide qualitative estimates of future brownfield supply, while highlighting policy lessons of wider international significance. Our conclusions suggest that greenfield development will increase in importance, especially in 'market hotspots' of both England and Scotland, and stress the need for more robust and integrated models to estimate future brownfield supply implications.

## **2. SUSTAINABLE DEVELOPMENT AND BROWNFIELD REGENERATION: THE EMERGENCE OF A DISTINCT POLICY AGENDA**

Over recent years, there has been a strong emphasis on sustainable development principles within UK planning and development processes. The UK Government has sought to promote policies based on what is often referred to as the 'Triple Bottom Line' approach to sustainable development (Elkington, 1997). This attempts to achieve development that promotes economic growth, but maintains social inclusion and minimises environmental impact (Dixon, 2007). In 1994, the UK government became the first to produce a national strategy on sustainable development, which was followed in 1999 by the outline of how it would deliver this in the report, 'A Better Quality of Life' (DETR, 1999). This laid out how the Government envisaged achieving economic, social and environmental outcomes set against a series of headline indicators.

More recently, this approach has been developed further with policy guidance (*'Securing the Future'*), which seeks to set a new framework goal for sustainable development (HM Government, 2005). This has also been underpinned by revisions to national planning guidance that aim to strengthen the focus of sustainable development within the wider UK planning system. A recent example from an English context is Planning Policy Statement 1 (PPS1) - Delivering Sustainable Development (ODPM, 2005a), which attempts to provide clearer guidance on how to incorporate sustainable development principles within the plan-led system. Similar themes are found in Scotland, for example, in Scottish Planning Policy 1 (Scottish Executive, 2002) and in the increasing emphasis on urban design (Scottish Executive, 2001).

Since devolution, the constituent countries of the UK have developed differing, but connected sustainable development agendas. For example, the UK Government and devolved administrations jointly launched their new Strategic Framework, 'One Future - Different Paths', in 2005 (DEFRA, 2005a). This was published in conjunction with the UK Government's new strategy for sustainable development 'Securing the Future' (HM Government, 2005).

The prominence of sustainable development as a UK policy agenda is strongly linked to the emphasis on brownfield regeneration, and in particular, the drive for new housing on such sites (Dixon, 2007). In 'Securing the Future' (HM Government, 2005), for example, brownfield redevelopment was viewed as vital in promoting environmental justice by removing environmental degradation in deprived communities. As Dixon (2006) suggests, this emphasis should also be seen in the context of a wider 'sustainable brownfield regeneration' agenda in Europe and elsewhere. For example, the National Round Table on Environment and Economy (2003), in a study of western, developed countries, highlighted the key generic benefits of brownfield regeneration (Table 1), while White and Allmendinger (2003) compared the importance of brownfield

regeneration in the UK and USA in explaining each country's approach to planning and housing supply.

<b>Economic</b>	<b>Social</b>	<b>Environmental</b>
Creation and retention of employment opportunities	Improved quality of life in neighbourhoods	Reduced urban sprawl pressures on greenfield sites
Increased competitiveness for cities	Removal of threats to human health and safety	Restoration of environmental quality
Increased export potential for cleanup technologies	Access to affordable housing	Improved air quality and reduced greenhouse gas emissions
Increased tax base		

**Table 1: The benefits of brownfield regeneration (National Round Table on Environment and Economy (2003))**

The regeneration of brownfield sites<sup>1</sup> for housing and other uses has therefore been portrayed as a key element in sustainable development agendas in the UK and elsewhere. In the UK, brownfield redevelopment has been seen as beneficial in preventing urban sprawl, keeping cities compact and reducing out-migration. It has been promoted by key policy instruments, including planning and policy guidance in England (see, for example, POST, 1998). For example, PPG3<sup>2</sup> Housing (ODPM, 2000), which covers policy guidance on housing land, states in paragraph 21 that: “The Government is committed to promoting more sustainable patterns of development by...making more efficient use of land by maximising the re-use of previously developed land and the conversion and re-use of existing buildings”.

This UK brownfield emphasis has yet to be reconciled with the need significantly to increase supply in a market sector traditionally unresponsive to demand pressures (Barker, 2003; 2004). As current statistics (English Partnerships, 2003) show, the brownfield land total is about 66,000 ha in England, with some 16,500 ha comprising 'hardcore' (or 'difficult to develop') sites. Baseline targets for brownfield recycling have therefore been for England to underpin the national sustainable development strategy. This target currently also applies in Northern Ireland (Department for Regional Development, 2001). In 1998 the Government proposed that by 2008, 60% of new housing should be provided on previously developed land and through the conversion of existing buildings (ODPM, 1998)<sup>3</sup>. Set against the 60% target, provisional estimates suggested that 73% of new dwellings were built on previously-developed land (including conversions) in 2005, compared with 56% in 1993 (ODPM, 2006). The 60% target was adopted as the basis of the headline indicator (H14)<sup>4</sup> in the 1999 report, *A Better Quality of Life*, which is known as a 'Tier 2' target (English Partnerships, 2003). The new 2005 sustainable development framework includes a revised indicator (Indicator 25 – 'Land Recycling'), which incorporates the existing measure of dwellings built on brownfield land, but also a further measure of all new development on brownfield land, including non-residential uses (HM Government, 2005). A further baseline target was also developed during the 2002 Spending Review (Tier 3), which provides both annual and time-specific targets for the amount of previously developed land to be reclaimed by both Regional Development Agencies and English Partnerships. This is currently set at 1,400ha per annum by 2006 across all English regions (English Partnerships, 2003).

However, just as the sustainable development agenda is articulated differently across the UK, so differences of approach also exist to brownfield targets. For example, unlike in England, there is

no national brownfield target in Scotland since the Scottish Executive considers that the wide variation in the availability of brownfield land in Scotland makes such a target inappropriate (Scottish Executive, 2003a). Instead, local planning authorities are encouraged to “promote the re-use of previously developed land in preference to greenfield land, provided that a satisfactory residential environment can be created” (Scottish Executive, 2003a, paragraph 29). If individual local authorities wish to set a brownfield target for their area, this is expected to be supported by an urban capacity study or equivalent. The Scottish definition of brownfield land in the glossary to Scottish Planning Policy (SPP) 3 is also shorter and less prescriptive than its English counterpart. There is also thus more explicit recognition in Scotland that “Where brownfield and infill sites cannot meet the full range of housing requirements, it will be necessary to release greenfield land next to built-up areas” (Scottish Executive, 2003a, paragraph 44). Where this happens, there is strong policy preference for existing settlements to be extended, rather than for new settlements to be created.

At a national level, however, any explicit policy linkage between brownfield regeneration and sustainable development is still to emerge in Scotland. It is noticeable, for example, that Scotland’s recently published Sustainable Development Strategy (Scottish Executive, 2005a) never mentions the words ‘brownfield’ or ‘vacant’ land and, on the few occasions where it engages with dereliction, it sees this as a resource primarily for improving the extent and quality of open space, rather than for housing development. The choice between brownfield and greenfield development is not portrayed as central to a more sustainable Scotland, although there is much in the strategy about the creation of thriving and healthy communities and the importance of more energy-efficient development. Equally, while SPP 3 is littered with references to sustainability and sustainable development, this is interpreted broadly in relation to residential quality, transport connectivity, mixed development and service delivery, rather than primarily as a land matter. Indeed, there is even a warning within SPP 3 against too much cumulative infill development, where it cannot be sustained by social and economic infrastructure.

It could be argued that Scotland’s reluctance to embrace a fully-fledged brownfield housing agenda merely reflects the slowness with which policy migrates northwards, but this would be a dangerous form of argument, especially in the context of Scottish devolution (Allmendinger, 2001 & 2002, Kintrea 2006, Tewdwr-Jones, 2001). It is more appropriate to look at the distinctive characteristics of the Scottish polity (for example the lack of a powerful national environmental group north of the border) and of urban form in Scotland, which is heavily concentrated in the central belt (Bailey & Turok, 2001). In the latter context, the proximity of greenfield sites to areas of high unemployment in the central belt has encouraged Scottish Enterprise and many local authorities to pursue a policy of ‘greenfield regeneration’ in which major sites on the edge of existing settlements have been consciously used to attract inward investment to Scotland (Phelps & Tewdwr-Jones, 2001)

UK devolution has clearly produced distinctive approaches to sustainable development, brownfield policy and planning guidance. In a wider international context, such examples of national distinctiveness can be related to the work of Goodwin et al (2006) and Gualini (2006), for example, which has highlighted how state restructuring and rescaling across Europe have taken on different emphases and inflections in different countries. This has clear implications for the way in which policy agendas are set, which in the UK is best understood as an ‘*enabling*’ rather than a ‘*prescriptive*’ process. These different emphases provide an important context for housing supply, which is also a key element in UK government policy, and has been the subject of intense debate following the Barker review.

### **3. UK HOUSING POLICY AND THE BARKER REVIEW: ENGLAND AND SCOTLAND COMPARED**

The UK Government suggests that a key objective for housing policy is to ensure ‘a decent home for every individual in the country’, as well as helping households manage assets, savings and risk; meeting citizens’ housing aspirations; creating sustainable mixed communities, and enabling labour market flexibility (HM Treasury, 2005). For the Government, it is housing’s properties as an asset (durability, uniqueness and flexibility) and its market characteristics (highly decentralised, directly connected to financial markets and with long run prices following lagged cycles) that present: “powerful microeconomic, social and distributional challenges .. {and} ... in turn motivates a range of policy interventions by government on both the demand and supply side to secure its key social and economic policy objectives” (HM Treasury, 2005:5).

In this context, the Chancellor and Deputy Prime Minister set up the Barker review in April 2003 to examine the housing market’s long term lack of supply and responsiveness to demand in the UK. Barker’s remit included the role of competition, capacity, technology and finance within the housebuilding industry, and the interaction of housing supply with both the planning system and the Government’s sustainable development objectives (Barker, 2003, 2004). Barker’s interim review included a wide-ranging consultation with key stakeholders not only to establish views and inform analysis, but also to identify options for Government policy, including fiscal instruments. A further important driver for the Barker review was also the 2003 Treasury assessment of the five economic tests, which formed the focus for Government recommendations on membership of the Economic and Monetary Union (HM Treasury, 2003). As Meen (2005) points out, since the Government believed that the UK housing market sensitive to future interest rate changes than those in Europe (owing to long-term price increase, high levels of mortgage debt and liberalised mortgage markets), it commissioned Barker’s major review.

Barker considered the housebuilding industry responded only slowly to changing UK housing. For example, in 2001, UK housing construction fell to its lowest level since 1945 (Figure 1). The output of new homes in the decade to 2002 was 12.5% lower than in the previous decade (Barker, 2004) primarily owing to much lower social housing output. Subsequently, total UK completions (by the private sector, registered social landlords and local authorities combined) have risen, although those in Scotland, Wales and Northern Ireland have remained relatively static.

Barker’s interim report found strong evidence of volatility in the UK housing market and weak responsiveness of housing supply to demand changes, resulting in relatively high house price inflation, compared with the rest of Europe. While Barker contended argued that restricted supply and the upward trend in house prices of some 2.7% in real terms over 20 years had led to deteriorating affordability, undesirable wealth transfers and reductions in labour mobility, she acknowledged the more ‘positive’ benefits of reduced urban sprawl and retention of greenfield space. Nevertheless, Barker (2004:5) argued that to improve affordability, create stability, provide housing in the most appropriate locations and sufficient social housing, would require: “...a more flexible housing market, one in which supply responds more strongly to changes in price. But this raises difficult choices. Accommodating demographic projections for household numbers up to 2021 alone would mean a higher rate of housebuilding than has been achieved recently.”

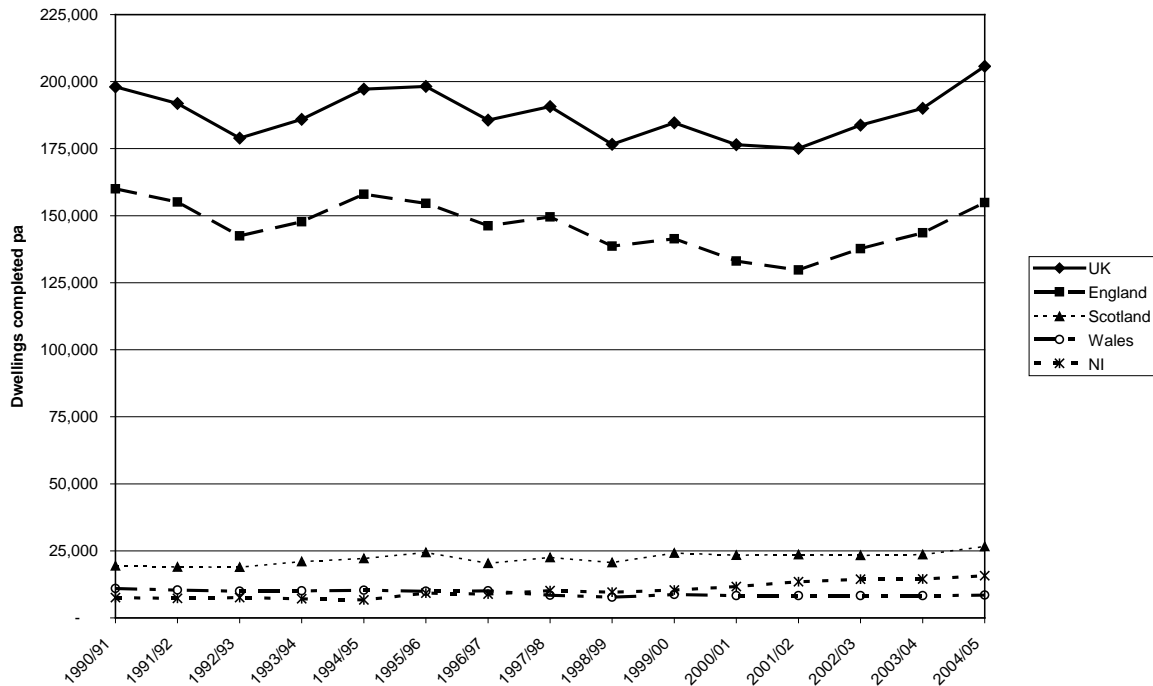


Figure 1: Housebuilding: permanent dwellings completed (1990-2004) (source: ODPM)

Crucially, Barker considered step changes in private and social housing supply essential to achieve real price trend reductions (Table 2). For example, to reduce the real price trend to either 1.8% or the EU average of 1.1% would require between 70,000 and 120,000 additional houses to be built each year. Barker viewed land supply as a key constraint. While her interim report (Barker, 2003) focused on developers’ perceived land-banking (which many of the industry’s critics considered restricted overall supply, her final report concentrated on the scarcity of permissions granted by the planning system to meet the level of demand (Barker, 2004).

	Real price trend (currently, 2.7%)	Additional private sector housing required (to 2016) (pa) (1)	Additional social sector houses required (to 2011) (pa)
Regional Planning Guidance (Government Plans)	2.4%	20,000	n/a
Reducing the long term trend	1.8%	70,000	17,000
Improving the housing market	1.1%	120,000	21,000
<i>Note: (1) These totals exclude the Sustainable Communities Plan figures for the south east (20,000 pa)</i>			

Table 2: Housing requirements set out in the Barker Review (England) (from Barker, 2004)

The Government’s positive response to Barker’s findings was reflected in increased provision of social housing (HM Treasury, 2004) and consultation on further planning reform (ODPM, 2005c). It pressed ahead even more vigorously with the *Sustainable Communities Plan*, first announced in February 2003, which involved building an additional 200,000 homes in England by 2016 over and above the numbers set out in the previous Regional Planning Guidance. Although four growth areas (Milton Keynes, Cambridge–Stansted, Ashford, and Thames Gateway) were identified in the

Sustainable Communities Plan, 'brownfield first' was still declared to be its key foundation (ODPM, 2003).

Although the Barker Review can be portrayed primarily as a response to the regional growth implications of housing undersupply in London and the South East, its brief covered not merely England but the UK as a whole. However, Barker (2004: 13) herself acknowledged potential differences in response between the constituent devolved administrations: "This Review was established with a UK remit, but given the devolved nature of housing and planning policies, many of the recommendations apply only to England. The devolved administrations will need to consider for themselves whether these recommendations are appropriate to their own circumstances, in the light of the policy changes the UK Government decides to adopt."

No doubt Barker recognised and retreated from the danger of proposing a UK wide housing policy based on market analysis only in England (or worse still only in SE England). It may be that she appreciated the weaknesses that such critics as Cole (2003) and Robinson (2003) argued had been created in English housing policy a decade earlier by such centrist tendencies. For as Robinson (2003) remarked: "The centralising tendency of successive governments left housing policy struggling to comprehend and respond effectively to increasing regional and subregional differentiation in housing markets in England during the 1990s. A consequence of this central-local paradox, whereby the centre has exerted increasing control over local affairs but is unable to appreciate and sensitise policy to the particulars of local housing markets, has been rising 'top-down' interest in the regional tier of housing administration".

Such differences have also been reinforced by market variations regionally within England, as well within the UK as a whole. As the Council for Mortgage Lenders (2003) noted, housing supply varies greatly across the UK at national, regional and local levels. For example, over the past three decades, the performance of the Scottish housing market has been distinctively different from that of England, making commentators question how relevant the Barker agenda is north of the border. For example, during the period 1970 to 2001, the real trend growth in Scottish house prices was only 1.5% per annum (Cartmell, 2005) – a figure close to the European average of 1.1% per annum and much lower than that of 2.4% per annum identified by Barker (2004) for the UK as a whole.

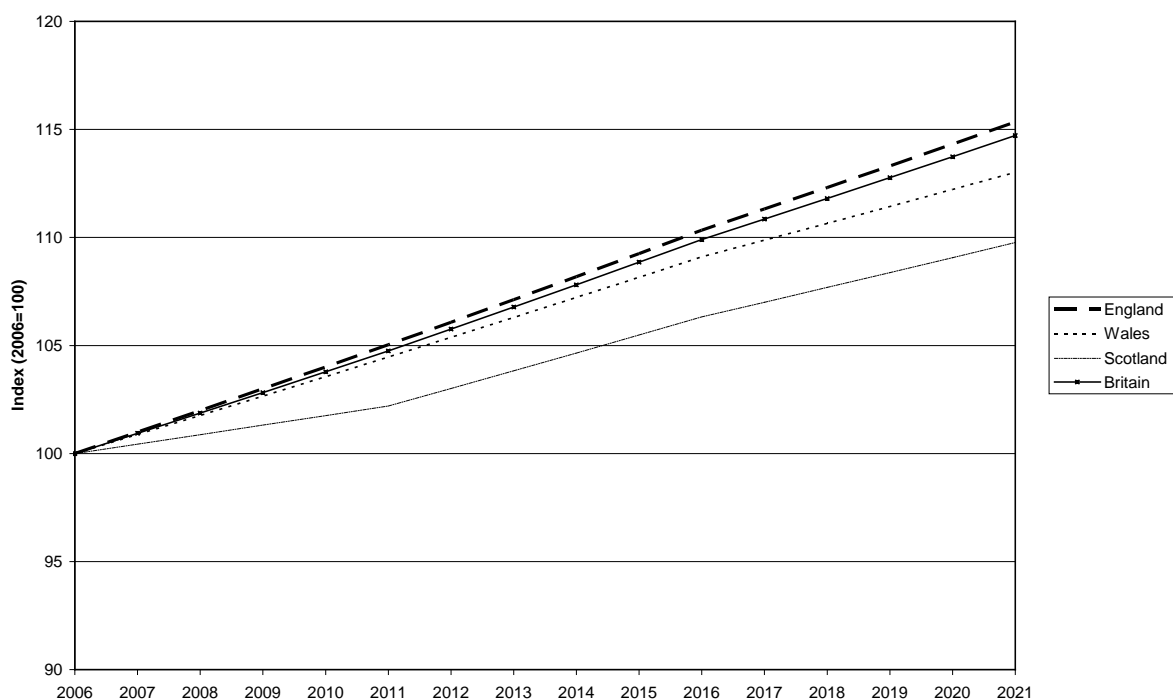
During the same period, the Scottish housing market was also significantly less volatile than that south of the border, with market activity characterised by steady if slower growth, rather than by the more pronounced booms and slumps seen in England. Interestingly, the less cyclical nature of Scottish housing market meant that over the 1990s as a whole, Scottish house prices actually outpaced those for the UK, even though they fell back in relative terms after 2000, owing to the strength of the latest boom in England (Jones, 2004). According to Cartmell (2005), this more measured long-term performance of the Scottish housing market reflects the higher long-run supply elasticity north of the border, which he estimates at 0.77 for the period 1973 to 2002 (a figure higher than all the English regions except Greater London, but still relatively low by international standards). Cartmell consequently argues that the same demand stimulus produces higher output and lower price rises in Scotland than elsewhere in the UK

Scottish house production has been remarkably consistent since the early 1990s, with over 20,000 new dwellings completed each year. Current production is about 23,000 to 24,000 new units annually, of which about 80% is built by the private sector (Scottish Executive, 2005b). Allowing for demolitions (mainly of unpopular public sector units), this produces a net increase in the dwelling stock of about 19,000 units annually, which slightly exceeds the annual increase of about 18,000 in the number of Scottish households. At a national level, this prompted Jack McConnell, the First Minister, recently to claim that: "The key difference between the housing markets in



England and in Scotland is that, in England, the number of houses being built is outstripped by the demand for those houses whereas, in Scotland, the number of houses being built is greater than the increase in demand” (Scottish Parliament, 2004).

This may be true nationally, but there are important regional and local significant differences in the balance between housing supply and demand, demonstrated by the marked differences between property ‘hotspots’ and less favoured locations in Scotland. Thus, according to HBOS (2003), between 1988 and 2002, house prices increased by 179% in Edinburgh and Galashiels, but only 66% in Kilmarnock and 46% in Irvine. These examples indicate how towns and cities in the east and north-east of Scotland generally saw much better house price appreciation than those in the west. As Jones (2004) comments, the price change differential between the highest and lowest performing locations in Scotland was almost 4 to 1, which was significantly higher than the comparative figures in England of 3.1 for Yorkshire and Humberside, around 2.1 for the South East, Greater London and the North, and 1.5 to 1 for the South West <sup>5</sup>. He suggests that this greater differential is because Scottish housing markets are much more diverse than those in England, reflecting distinctive local economies and the scale of inter-urban distances. If this is correct, it means that the Barker agenda may be most relevant in Scotland in a small number of property ‘hotspots’, but that the case even for its selective application here may not be realised, if analysis is conducted on an aggregate basis for Scotland as a whole.



**Figure 2 Great Britain and constituent nations index of household growth, 2006-2021 (source: data from Registrar General for Scotland and DCLG)**

Variations in demographic projections between the four countries of the UK also affect future demand. While the population of Scotland is projected to rise, peaking in 2019 and then slowly decline, the populations of the other three countries in the UK are projected to rise to 2031, and continue rising except for Northern Ireland where the population is projected to peak in 2033 and then slowly decline. In England, for example, current projections show the population increasing by 5.7million over the next 20 years, driven by longer life expectancy, and paralleled by a trend towards smaller households, because of changes in age patterns and marital status. ODPM

projections suggest an average household formation rate of at least 209,000 per year up to 2026 (ODPM, 2006).

In contrast to England, over the past two decades, Scotland's population has fallen (from 5.18 million in 1981 to 5.08 million in 2004) and is now predicted to recover only slightly in the next decade or so (to 5.1 million in 2019) before falling to just under 5 million by 2036 and to 4.86 million by 2044 (Register General for Scotland, 2005). However, the most recent household projections (General Register Office for Scotland, 2006), which reflect a more accurate indicator of housing demand than population, forecast a 13% increase in the number of Scottish households from 2.25 million in 2004 to 2.5 million in 2024 (Figure 2). This reflects a predicted fall in average household size from 2.22 persons in 2004 to 1.97 persons in 2024. Significantly, Scottish household growth is not evenly spread, but is biased towards the locations within good commuting distance of Edinburgh. Thus, West Lothian, East Lothian and Stirling are expected to see increases in household numbers of 34%, 22% and 17% respectively over the period 2004 to 2024, while, in contrast, household numbers are predicted to decline by 6% in Dundee and 1% in Inverclyde. Relative geographical shifts in Scotland's population are therefore likely to remain a key planning challenge for the foreseeable future.

#### **4. THE BARKER REVIEW AND THE IMPLICATIONS FOR BROWNFIELD REGENERATION IN ENGLAND AND SCOTLAND**

Some commentators have argued that if housing supply is to meet Barker's aspirations, the environmental consequences, including the impact on greenfield land, would be severe (see for example House of Commons Environmental Audit Committee (EAC, 2005; 2006) and the Campaign to Protect Rural England (CPRE, 2005)). Barker herself acknowledged the potential environmental impacts of increased housebuilding and identified '*difficult choices*' relating primarily to the environment (including land use) and public amenity (Barker, 2004). She also gave the Environment Audit committee an interesting response to fears about developing greenfield land (EAC, 2005: Ev135): "What I did not want to do in the report was to duck the point that if we are going to increase the rate of house building inevitably we will increase the number of houses built on greenfield land. I think to have asserted that it would be possible to do all this extra on brownfield land, given the evidence we have had from English Partnerships about the work that needs to be done to continue to bring brownfield land forward, would not be right. Equally, that does not mean that I do not think we should continue with the 60% build on brownfield land, which I think is absolutely possible".

Although the review itself suggested that the impact on rural areas would be negligible, its focus here was primarily on England. For example, if an additional 120,000 homes were built annually, and concentrated exclusively in the South East, over the period 2004-2014 an additional 0.75% of the land area of the region would be taken (Barker, 2004).<sup>6</sup> Indeed, the initial review (Barker, 2003) recognised the clear benefits in building on brownfield land as it ensures the most efficient use of available land and avoids using greenfield land, and can make use of existing infrastructure rather than requiring new, as well as helping regenerate deprived neighbourhoods and areas.

Nonetheless, these benefits can be seen as positive externalities, which are not necessarily signalled to housebuilders in the form of higher potential profits. As Barker (2004) also noted, both '*market and site-specific risk*', in the form of high development costs and the presence of contamination on site, can increase '*housebuilders' aversion to brownfield development*'. In many instances, brownfield land is simply not appropriate for development. English Partnerships, for example, in their National Brownfield Strategy document (English Partnerships, 2003) suggested that of the 65,500 ha of brownfield land available in 2003, 69% was not suitable for development because of regulatory

constraints, or location within weak housing markets. This leaves 31% free of major constraints but, of this, only 11% (7,330ha) is available for development, the equivalent of about 1 years' supply for hard end uses (English Partnerships, 2003).

More recently, a study was commissioned by ODPM (ODPM, 2005b) to address the wider sustainability impacts of the Barker review (including land taken) and to provide information on which to base policy decisions. The study examined three scenarios (based on Barker) that added further growth to the 200,000 already proposed in the Sustainable Communities Plan. These comprised 'Low additional growth' (25,000 additional market dwellings per annum); 'Medium additional growth' (50,000 additional market dwellings per annum); and, 'High additional growth' (100,000 additional market dwellings per annum).

Each scenario assumed growth would occur from 2006 to 2015 with dwellings occupied one year after construction. Beyond 2016 (to 2031) the study assumed construction would return to the agreed levels in Regional Planning Guidance. The study also explored how varying regional distributions of growth might affect the environmental impacts (land take, carbon dioxide emissions, waste arisings, water and transport); the impact on local and regional economies (in terms of jobs and employment patterns) and the social impacts (including affordability and crime and social inclusion/exclusion).

In terms of total land take, there are currently about 2.6mn ha of urbanised land in England, and if planned development occurred at 2004 densities (37-38 dw /ha) by 2016, planned baseline growth would require approximately 126,000 ha land, with additional land within the growth scenarios ranging from between 11,300ha to 47,400 ha (ODPM, 2005b). As far as brownfield land is concerned the report concludes that assuming additional brownfield land continues to become available at current rates (about 8% of the total stock per annum) the current PPG3 target of 60% recycling could be met for all growth and distribution scenarios up to 2008. However, under a high growth scenario in the south only 34% of new development could be accommodated on brownfield land by 2016, and this is "*highly dependent on density and growth assumptions*". In the scenario based on lower growth at higher densities, the equivalent proportion would be 64% by 2016 (ODPM, 2005b).

Savills (2005), however, have questioned whether the supply of brownfield land could meet current market demand for housing in England. Using the National Land Use Database, Savills point out that although recent government statistics (ODPM, 2005d) suggest that in 2004 there was sufficient brownfield land for nearly 986,047 homes, some 26,000 ha of the 64,000ha of brownfield land in England is currently in use, making immediate redevelopment problematic. Savills calculate that the true supply is 447,737 units, and represents less than five years' supply at current build rates. Moreover, much of this land is situated in areas of relatively low demand, such as the North West and Yorkshire/Humberside (Savills, 2005). This concern was echoed at a regional level by SEEDA (2005), who expressed doubts during the South East Regional Plan consultation whether a target recycling rate of 60% (which subsequently formed the Plan's target) could be maintained over the lifetime of the plan. Such controversy has been heightened by the recent report from Roger Tym (2006) suggesting even higher levels of housebuilding than the plan<sup>7</sup>.

Similarly, a crucial question in the Barker context for Scotland is whether there is scope to achieve significantly higher levels of housing output on brownfield land in the most pressured areas of the country, or whether it will be necessary to turn increasingly to greenfield land, if the planning system is to continue to meet rather than constrain demand. The next part of this paper therefore uses existing data sources in England and Scotland to ask whether there is a sufficient supply of existing brownfield land to satisfy the drive for new housebuilding envisaged by Barker.

## **5. IS THERE ENOUGH BROWNFIELD LAND AVAILABLE FOR HOUSING IN ENGLAND AND SCOTLAND?**

Brownfield regeneration is a complex process involving many actors (Doak and Karadimitriou, 2007). There have been several previous attempts to conceptualise models of brownfield regeneration. These are reviewed in Dixon (2007) and examples include POST (1998) and CABERNET (2003). The latter emphasises the ‘stock and flow’ nature of brownfield regeneration where brownfield land flows replenish existing stock levels. This point is also made in ODPM (2005e) in a different context, where an econometric model was developed to measure regional housing affordability. The model allows the user to derive net additions to the housing stock that are consistent with various levels of an affordability goal. The net addition comprises a combination of new starts, conversions and demolitions, although the model does not provide separate estimates of each. Whilst this issue of ‘net additions’ is recognised in the context of the current analysis, because of data limitations in both countries, we present essentially qualitative estimates of brownfield supply, before reflecting on how emerging simulation models (ODPM, 2005e) can add to the analysis conducted here.

### **5.1 England**

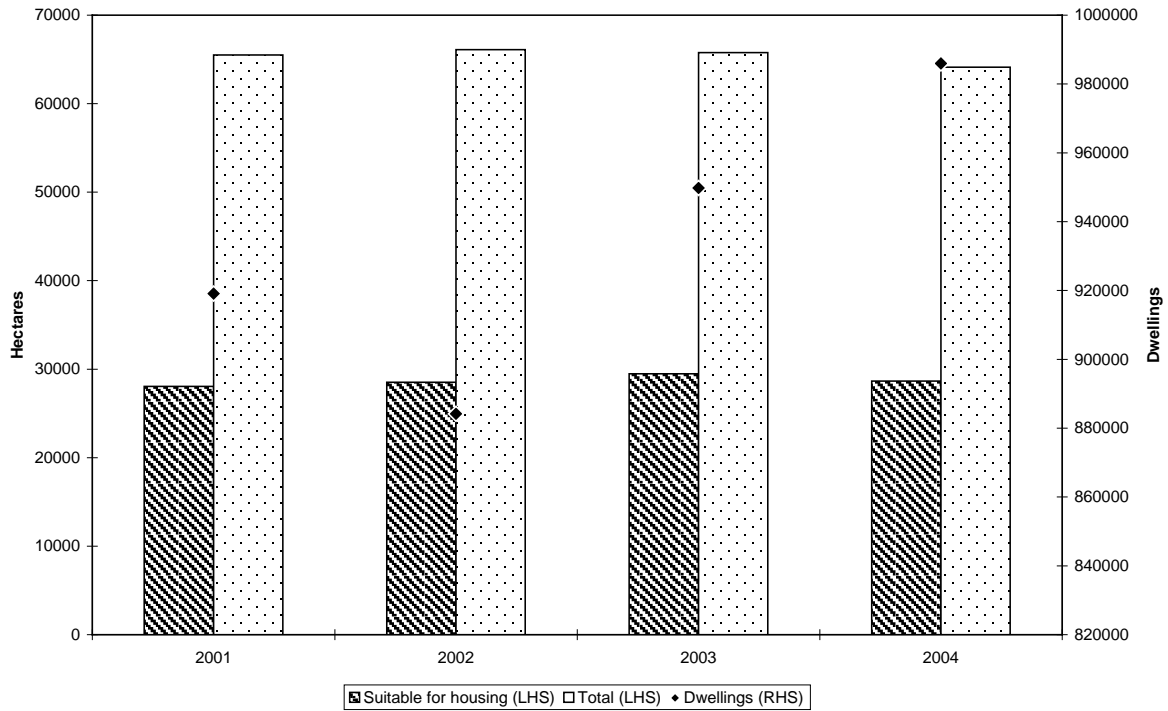
Using the National Land Use Database (NLUD) enables a clearer picture to be built up of brownfield housing stock in the English regions and to build on previous research. NLUD disaggregates brownfield land into the following categories:

- Vacant and derelict land (comprising previously developed vacant land; derelict land and buildings and vacant buildings) and
- Land currently in use (allocated in a local plan or with planning permission for any use and known redevelopment potential but no planning allocation or permission).

It also breaks these categories down into uses which have been allocated or given permission (by ‘housing’, ‘mixed use’, ‘other’ or ‘none’ groups), and further disaggregates according to whether such land is ‘suitable for housing’, based on judgements by local authorities. This is then used to calculate the potential ‘number of dwellings’ based on existing planning permissions or estimated capacity based on current density assumptions. The dataset therefore offers a rich source of data which can be used with the Barker scenarios to examine brownfield stock issues. The following analysis presents some key findings.

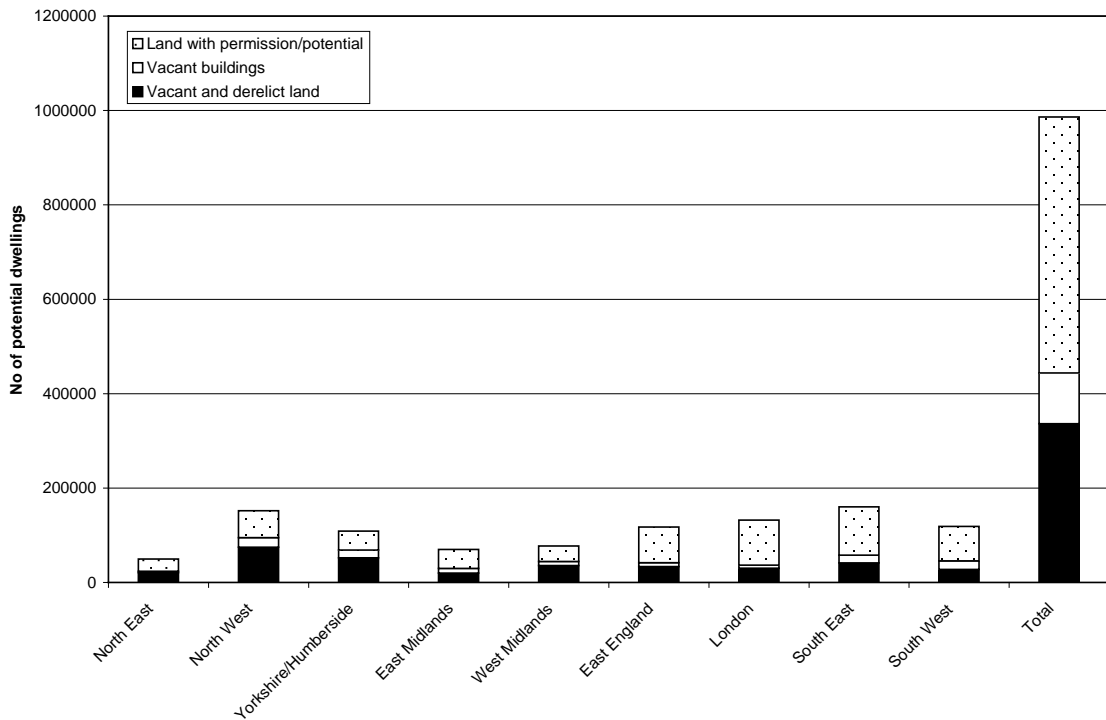
Figure 3 shows that the total amount of brownfield land has remained fairly stable over the period 2001 to 2004, and the same is true of land categorised for housing. However, the capacity for the total number of potential dwellings has risen over the same period from 919,000 to 986,000 partly reflected by changes in density assumptions (from 32 dwellings per ha in 2001 to 34 dwellings per ha in 2004).

When the national picture is broken down regionally, it is clear that a substantial proportion of dwellings categorised as capable of development on currently vacant/derelict sites. Nationally the figure is 45%, but in the North West and Yorkshire/Humberside the figures are 62% and 63% respectively, reflecting the relatively high regional proportion of dereliction and vacancy (Figure 4). The figure for the South East is much lower at 36%, but the overall figure for dwellings is 160,000 as against 152,000 in the North West, which needs to be set against the higher growth in households and dwellings projected for the South East.



**Figure 3: Brownfield stock: total area and suitable for housing (area and dwellings) (England, 2001-2004) (source: ODPM)**

Using this regional data in conjunction with Barker projections enables a figure to be calculated for ‘notional years’ supply of brownfield stock that is suitable for housing. Table 3 summarises the key elements in these projections.



**Figure 4: Brownfield stock and housing (English regions, 2004)**

Region	Regional Planning Guidance (RPG)	Barker 'Low'	Barker 'Medium'	Barker 'High'	Total brownfield stock (suitable for housing) (2004)	Total brownfield stock with permission/potential (suitable for housing) (2004)
Basis	Dwellings per annum	Dwellings per annum	Dwellings per annum	Dwellings per annum	Total dwellings	Total dwellings
North West	6000	7018	8037	10073	49600	25693
North East	12790	14961	17132	21473	152100	57075
Yorkshire/Humberside	13654	15971	18289	22924	108700	40036
East Midlands	13700	16025	18350	23001	70000	40178
West Midlands	13055	15271	17486	21918	77100	32679
East England	20850	24389	27927	35005	117400	75722
London	19000	22225	25449	31899	132100	95335
South East	28050	32811	37571	47093	160200	102383
South West	20200	23628	27057	33914	118700	72921
Total	147299	172299	197299	247299	985900	542022

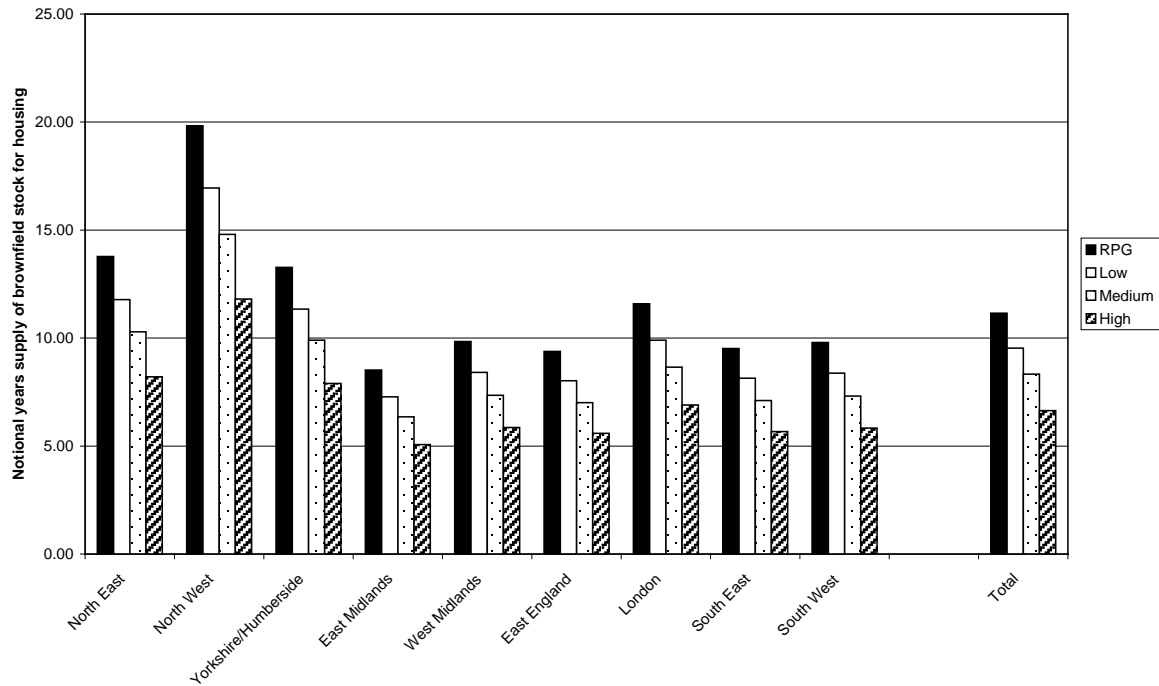
#### Notes

- (1) Regional Planning Guidance (RPG) figures used as 'baseline'.
- (2) Barker projections based on ODPM (2005d) figures of 'low' (25,000 pa); 'medium' (50,000 pa) and 'high' (100,000 pa). Weighted regionally in proportion to RPG figures and added to RPG.
- (3) RPG and Projections exclude the total of 20,000 dwellings pa under Sustainable Communities Plan.
- (4) For the calculations, a brownfield recycling target figure of 60% was used for each region. Notional years' supply = Relevant total brownfield stock figure / Annual brownfield completions per annum (based on projections)

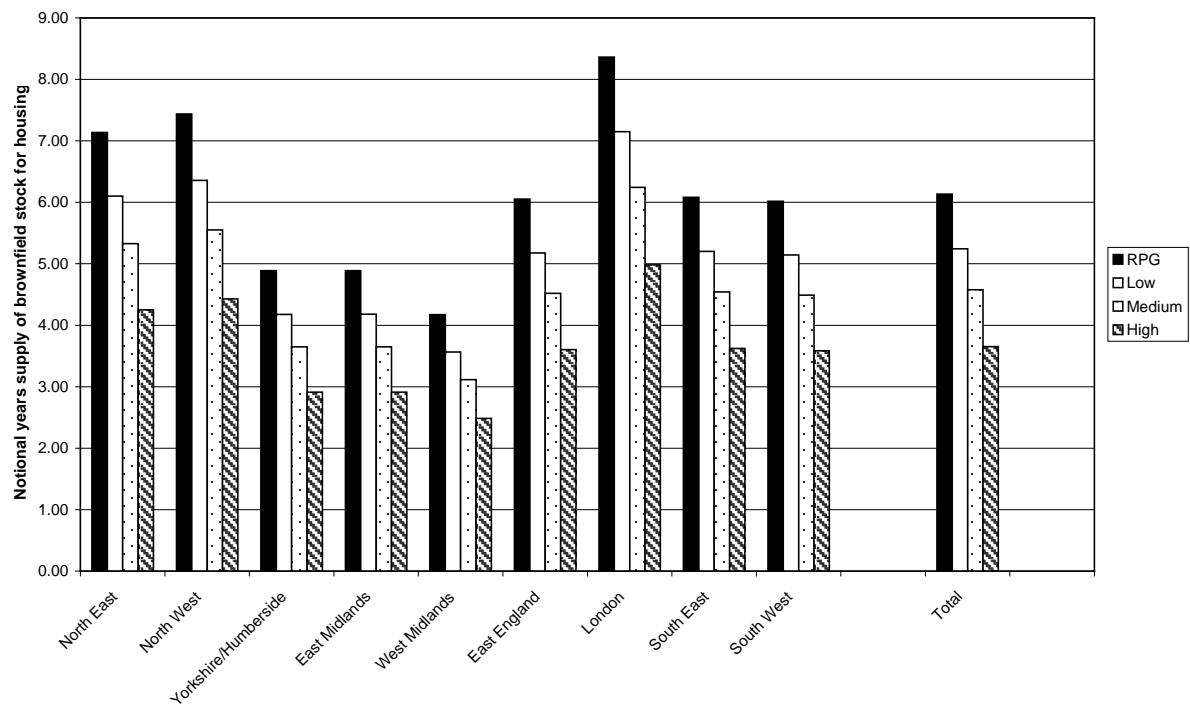
**Table 3: Regional housing projections and brownfield stock for housing in England**

This formed the basis for calculations which are illustrated in Figures 5 and 6. Essentially the calculations highlight the number of years' supply of brownfield remaining, treating the total 'stock' figure of brownfield as a finite amount which contributes to the annual requirements for brownfield development for housing.

As Figure 5 shows, under an RPG-only scenario, there is just over 11 years' supply of brownfield land available, if all brownfield land suitable for housing is included in the calculation. Under a 'low' Barker scenario, the figure is 9.5 years; under a 'medium' scenario, 8.3 years and under a 'high' scenario, 6.7 years. Regionally there are variations with the North West at 19.8 yrs under the RPG-only scenario; and 11.8 years under the high scenario. At the other extreme are the East Midlands with a figure ranging from 8.5 years under RPG to 5.07 years under the high scenario.



**Figure 5: Years' supply of brownfield available for housing (all brownfield land 'suitable for housing') (English Regions, 2006-2016)**



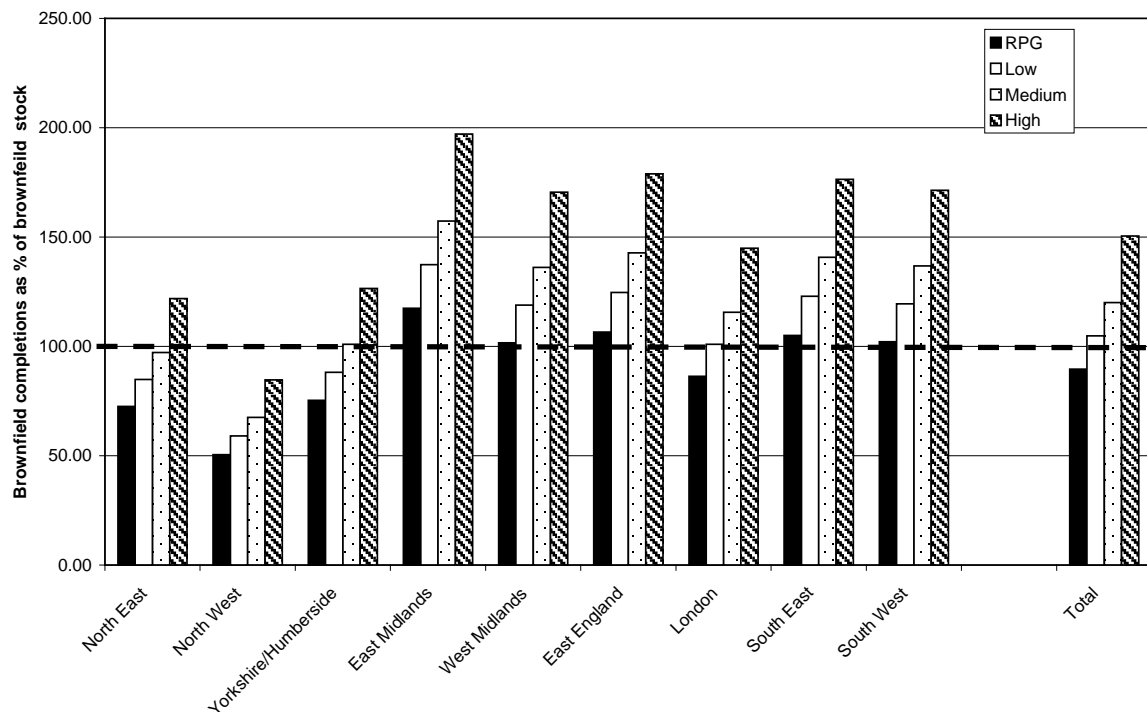
**Figure 6: Years' supply of brownfield available for housing (all brownfield land with planning permission or allocated as suitable for housing) (English Regions, 2006-2016)**

When only brownfield land with planning permission/potential or allocation is included, the picture shown in Figure 6 emerges. Nationally only just over 6 years' supply is available under the RPG scenario; 5.2 years under the low Barker scenario; 4.6 years under a medium Barker scenario

and 3.7 years under a high Barker scenario. Regional figures are also correspondingly lower. Because London has a higher proportion of land with planning permission/potential and allocation, however, it performs relatively well, but under the high Barker scenarios all other regions have less than 7 years' supply.

Clearly these are fairly crude projections but they highlight the fact that pressures on brownfield stock are unavoidable if the Barker projections are to be implemented. A key issue is one of the type of stock available, and the ease with which such land is likely to come on stream, in terms of available planning permission, complexity of cleanup and so on. It can also be argued that the total brownfield land stock is being constantly replenished, of course, and that the stock figure is therefore not finite. As Figure 3 suggests, the stock of brownfield land has remained stable, so as brownfield land is developed, more brownfield land flows replenish the overall stock figure. This is borne out by statistics (ODPM, 2005) which suggest 10% of all PDL sites reported in March 2003 had been developed by March 2004, and that newly available PDL accounted for 8% of the stock as it was in March 2003<sup>8</sup>.

However, the projections made in this paper exclude the Sustainable Communities plan figures (which would add about 20,000 dwellings to the RPG figures in London, East England, East Midlands and South East. Also a conservative estimate of 60% brownfield recycling has been used in the calculations, and which in many regions has been exceeded with higher targets now part of draft regional plans. Densities are those shown in Table 3, at an overall average of 34 dwellings /ha. Again, weighting the growth towards the South East would also reduce the years' supply figure in this region still further. Finally, given that Barker was rationalising on the basis of 20 years increased housing supply levels, brownfield supply in the scenarios 'runs out' before this point in time is reached.



**Figure 7: Brownfield completions as percentage of all brownfield land suitable for housing (2006-2016)**



This latter point is illustrated in Figure 7 which shows the regional and national pattern when a lower, 10 year build programme is included. Even under this condition, the majority of regions would use up more than the available brownfield land over this period. An exception is the North West, which has a larger amount of brownfield land relative to housing supply projections than other regions.

## 5.2 Scotland

In the case of Scotland it is not possible here to make a direct comparison with England, as the most relevant Scottish statistics, contained in the Scottish Vacant and Derelict Land Survey (SVDLS) do not match well with the National Land Use Database in England. Nonetheless SVDLS was initiated in 1988, updated in 1990 and has been undertaken on an annual basis since 1993. Annual surveys have recorded a gradual fall in the total amount of vacant and derelict land in Scotland from about 13,000 hectares in 1996 to 10,570 hectares in 2005 (Scottish Executive, 2006) Components of change analysis show that these net figures disguise a more dynamic process in which substantial annual inflows (as land becomes newly vacant or derelict) have been more than outweighed by greater annual outflows (as vacant and derelict land has been developed or reclaimed). Although Table 4 shows the geographical distribution of the 2005 total between Scotland's four new strategic development plan areas and the rest of the country<sup>9</sup>, this should be regarded as a snapshot at a point in time, rather than an accurate reflection of the process of land use change over time. However, as Table 4 clearly shows, the bulk of Scottish brownfield land is concentrated in the west around Glasgow, where housing demand has been relatively weaker, while its provision is limited in the more pressured housing markets around Edinburgh and Aberdeen<sup>10</sup>.

Location		Hectares	Proportion
Strategic Development Plan Area	Aberdeen	223	2.1%
	Dundee	909	8.6%
	Edinburgh	1746	16.5%
	Glasgow	4724	47.4%
Rest of Scotland		2968	28.1%
Total		10570	100.0%
<i>Source: Scottish Vacant and Derelict Land Survey 2005</i>			

**Table 4: Vacant and Derelict Land in Scotland 2005**

How many new homes could be built on land currently vacant or derelict in Scotland? It is difficult to be certain, since SVDLS only hints at an answer and does not disaggregate some of the more relevant information down to local authority area. However, as Table 5 shows, at a national level, the survey suggests that 23% of all vacant and derelict land is considered by the local authorities to be most suitable for residential development. It also suggests that some 41% of the 6,640 hectares of vacant and derelict land within defined settlements is developable<sup>11</sup> in the short term and 33% in the medium term. For the 3,930 hectares of vacant and derelict land beyond defined settlements, the respective figures are 15% and 48%

Making the simple (but unrealistic) assumption that the 23% figure (derived from SVDLS, 2006) for land considered suitable for residential development is evenly spread across all vacant and derelict land in Scotland and working on a range of density assumptions, Table 5 indicates the possible development potential of Scotland's stock of brownfield land in 2005.

Assumptions	Within defined settlements		Beyond defined settlements	
	<i>Developable in short term</i>	<i>Developable in medium term</i>	<i>Developable in short term</i>	<i>Developable in medium term</i>
Hectares suitable for residential development (23% of total)	538	439	107	338
No of units 25 dwellings per hectare	n/a	n/a	2675	8450
No of units 34 dwellings per hectare	18292	14926	3638	11492
No of units 55 dwellings per hectare	29590	24145	n/a	n/a
No of units 75 dwellings per hectare	40350	32925	n/a	n/a
<i>Source: Based on Scottish Vacant and Derelict Land Survey 2005</i>				

**Table 5: Development Potential of Vacant and Derelict Land in Scotland**

The crude analysis in Table 5 suggests that, at average density levels of 34 dwellings per hectare density, there may be short term development potential for almost 22,000 dwellings on vacant and derelict land in Scotland, and medium term potential for almost a further 26,400. If much higher average densities of 75 dwellings per hectare were achieved on vacant and derelict land within defined settlements, these figures would rise to approximately 42,000 dwellings in the short term and further 44,400 in the medium term. Altogether, this higher estimate equates to slightly over three years' supply at current development rates. It could be increased further if local authorities consider a higher proportion of vacant and derelict land in Scotland suitable for residential development. It is also vital to remember, as with the NLUD calculations for England, this is a 'stock' figure and takes no account of the 700 or so additional hectares that have become newly vacant or derelict in a typical recent year.

It is not possible within the SVDLS data to offer any sensible division of these findings between the four Strategic Development Plan areas in Scotland, although all related evidence would suggest a concentration in the west of Scotland, as the National Planning Framework (Scottish Executive, 2004, paragraph 156) makes clear: "National planning policy encourages the reuse of previously developed land in preference to greenfield land. However, while the highest levels of growth are expected in the East, vacant and derelict land is heavily concentrated in the West. There is therefore potentially much greater scope for accommodating new development on previously used land in Glasgow and the Clyde Valley than in Edinburgh and the Lothians and the City of Aberdeen, where a substantial proportion of new development will have to be on greenfield sites".

If the Scottish Executive wishes to encourage significantly more development in property hotspots to avoid unacceptable house price increases, it is likely that it will need to persuade local planning authorities in such locations to accept major greenfield development. Indeed, there is certainly no evidence from Tables 4 and 5 to suggest that substantial increases in housebuilding rates in and around Edinburgh, for example, could be met largely from brownfield land, unless there is a noticeable acceleration in the pace of which land currently in use becomes vacant or derelict. It is thus likely that while vacant and derelict land could provide more than three years' supply at current development rates in the west of Scotland<sup>12</sup>, significantly less will be available in the east and that much greater reliance on greenfield development will be necessary. Indeed, the Edinburgh and the Lothians Structure Plan 2015, approved by the Scottish Executive in 2004, envisages substantial

greenfield development in East, Mid and especially West Lothian to match the emphasis on brownfield redevelopment within Edinburgh itself. Of course, as Scotland has never has a national brownfield target, this can be portrayed as entirely consistent with national policy.

## 6. CONCLUSIONS

The brownfield agenda has been interwoven with the emergence of sustainable development policies in both England and Scotland. This mirrors a wider move internationally to focus on brownfield development as a key platform in western governments' urban regeneration policy agendas. However, such policies can raise particular issues in relation to the practical reality of implementation in situations where powers are devolved. This is recognised to some extent by the Barker review, which highlighted the need for devolved administrations to '*consider for themselves*' the implications of national policy. In these areas it is for the devolved administrations to determine their own policies and how much funding they wish to allocate to them within their overall budget. There are problems with this approach, however, as suggested, in a different context by Robinson (2003) in relation to England. It appears as if similar issues over '*centrist-local*' tensions also apply within the devolved constituents not least because of market differences.

Although the Barker review considers UK housing supply, there are important differences between the housing markets in England and Scotland. This is a point made by the Council of Mortgage Lenders (2006:15) in relation to the constituent parts of the UK: "It is clear from this overview that grouping the four nations together under the UK umbrella provides an over-simplistic overview of the housing market. Differences clearly exist within each nation and in some respects the housing market could be viewed as a number of local markets that co-exist and, while closely related, are not identical.... Because of these differences between the nations it is often the case that a one size fits all policy will not work across the UK."

It is therefore important to consider these differences in greater detail in reviewing the impact of Barker. These differences are also reflected in variations between demographic trends, house price patterns, housing supply, and affordability, and so a key challenge for those seeking to implement Barker therefore will be not only to recognise and understand the basis for these differences in more detail, but to also appreciate that existing brownfield supply cannot sustain the high levels of housebuilding required over the medium to long term in either England or Scotland. The converse is also true: if brownfield supply cannot satisfy housing supply requirements, then greenfield land will inevitably be required, and greenfield requirements will be commensurately higher if densities remain at current levels, and growth continues to be focused on South East England. In England proposed changes to PPG3 in the shape of the new PPS3 are also likely to fuel the debate over whether the Government is moving away from sequential testing which formerly prioritised brownfield regeneration in urban areas towards short term, developable sites which may well be greenfield (ODPM: Housing, Planning Local Government and the Regions Committee, 2006).

Admittedly the empirical analysis in this paper which has sought to identify and highlight such shortfalls is crude in its approach, and the scenarios we have incorporated are also sensitive to density assumptions: the projections for England, for example, are based on an average density of 34 dwellings per ha. The research commissioned by ODPM on sustainability impact (ODPM, 2005b) suggested that the greenfield / brownfield split in land taken is highly sensitive to location and density assumptions. For example, under the high additional growth scenario with development concentrated in the south in the ODPM report, it is estimated that only 34% of new development can be accommodated on previously developed land by 2016. In the lower additional growth scenarios at higher densities, the estimated proportion is 64% by 2016. But this would require dramatic increases in density under the ODPM scenarios. For example, increasing average

infill densities from 45 dwellings per hectare to between 84 and 98 dwellings per hectare and average urban extension dwelling densities from 34 dwellings per hectare to 44 dwellings per hectare leads to a reduction in total land take of between 18.5% and 20% when compared to the 2016 land requirements for dwellings based on current dwelling densities. Increasing average infill densities further to between 150 and 180 dwellings per hectare and average urban extension densities to 55 dwellings per hectare would lead to a reduction in total land take of between 28% and 32% when compared to the 2016 land requirements for dwellings based on current dwelling densities (ODPM, 2005b).

Clearly more sophisticated models such as those developed by ODPM (2005e) are needed to ensure the 'stock and flow' characteristics of brownfield replenishment are taken into account. However, part of the problem in arriving at a definitive answer to a key question posed in this paper also revolves around the differing data available for England and Scotland. In the SVDLS system not only is it easier to arrive at a definitive figure for flows of brownfield land, but contaminated sites are also easier to identify, for example. As Adams and Watkins (2002) point out, both SVDLS and NLUD should be regarded as an initial step in evaluating stock issues, but not as a definitive information source on which to base policy judgements.

Nonetheless, it is clear that the focus on increased housebuilding to high levels will have important ramifications for greenfield land. In the UK, a strong emphasis has been placed on policies which focus on sustainable development and brownfield regeneration. The interaction of these twin agendas has increasingly led to tensions between the three pillars of sustainability in the triple bottom line model (Dixon, 2007). Previous research has shown that UK Government policy appears to have been relatively successful in shifting the pattern of development towards brownfield sites (Dixon, 2007), and it is also clear from this paper that tensions in policy aims, of which the '*centrist vs local*' debate is a part, are creating difficulties and potentially threaten the success of the UK regeneration agenda.

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## NOTES

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<sup>1</sup> In this paper 'brownfield' is defined as any land, which has been previously developed, including derelict and vacant land, which may or may not be contaminated. This follows closely the definition of ODPM (2000).

<sup>2</sup> Although Scotland has long had its own system of planning law and policy, there has been much greater scope to articulate a distinctively Scottish approach to planning matters since the establishment of the Scottish Parliament in 1999. At a national level the most recent Scottish Planning Policy statement equivalent to PPG 3 south of the border was published in 2003, and is known as SPP 3: Planning for Housing (Scottish Executive, 2003a). As with PPG 3, SPP 3 is but the latest version of a particular aspect of national planning guidance that has gradually evolved over the last two decades or so.

<sup>3</sup> The target has been criticised by some (Adams and Watkins, 2002) as being based on an absolute figure of new completions which could therefore meet a percentage target even though the completion rate was falling. Some observers (see EIC, 2004) have suggested raising the percentage target to say 80%, and more recently English Partnerships (2005) have floated the idea of using a target for other types of PDL (i.e. non-residential).

<sup>4</sup> The new 2005 sustainable development framework proposes a revised indicator (H25), which includes the existing measure, but also a further measure of all new development on PDL (HM Government, 2005).

<sup>5</sup> It is likely that the ratios described are dependent on the time period chosen.

<sup>6</sup> This was on the assumption that 60% of development would take place on previously developed land and that density was 30 dwellings per ha (with a related infrastructure allowance).

<sup>7</sup> The National Land Use Database of Previously Developed Land and Buildings (NLUD – PDL) classifies land into the following categories: -

Land Type A – Previously developed land now vacant

Land Type B – Vacant Buildings

Land Type C – Derelict Land and Buildings

Land Type D – Land or buildings currently in use and allocated in the local plan and/or having planning permission

Land Type E – Land or buildings currently in use with redevelopment potential.

As Myers and Wyatt (2004) point out, English local authorities require this information to meet their own objectives for reuse of previously developed land for housing, as set out in the Best Value Performance Indicator (BVPI 106), and to inform their dealings with Regional Planning Bodies and Regional Development Agencies. However, Wyatt (2003) also suggests the NLUD database is prone to some inaccuracy and suggests that initially some local authorities excluded land that would appropriately have been included in the database for fear that its inclusion could be interpreted as the site or building being suitable for housing. In some instances local authorities therefore chose to exclude employment land from the database altogether. Similarly if a site has planning permission but is still in use, some critics suggest its inclusion as PDL stretches the credibility of the database,

<sup>8</sup> This survey understates the rate at which buildings become vacant and are redeveloped, partly because small sites below 0.25 hectares were mostly excluded in 2003 and 2004, and also because buildings can become vacant and be redeveloped without being vacant for the 12 months that would bring them within scope (ODPM, 2005).

<sup>9</sup> Fife is the only local authority area that is within two designated Strategic Development Plan areas, namely those for Dundee and Edinburgh. For the purpose of Table 4, the total amount of vacant and derelict land in Fife has been split equally between these two SDP areas.

<sup>10</sup> This is recognised in the Scottish Executive's (2006) Regeneration Policy Statement, People and Place, which identified the Clyde Corridor as the national regeneration priority and committed an extra £20 million to tackle long term land vacancy and dereliction in Glasgow, North Lanarkshire and Dundee.

<sup>11</sup> Since 'developable' is defined by local authorities, it is likely to reflect primarily physical rather than economic considerations. It is unclear to what extent the definition takes account of water and sewerage constraints, which in

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recent years have been a major impediment to the redevelopment of brownfield land in Scotland and which the former Minister (Chisholm, 2005, p. 5) pledged to tackle through “*a massive increase in resources has been allocated to developing the strategic infrastructure - the water and sewage works - to release constraints on housing development*” and by requiring that “*In future housing developers will have to help fund the costs of new trunk sewers and mains.*”

<sup>12</sup> It is known, for example, that brownfield land accounts for about 70% of all house completions in Glasgow (Scottish Executive, 2004).