

# Science for Environment Policy

## German greenbelt policies successfully protect valuable areas from urbanisation

**Greenbelt policies in Germany, used to curb urban sprawl, are effective in protecting open spaces and the valuable natural resources they cover, a new study has found. Nevertheless, urban development can 'leapfrog' greenbelts, hopping over them into areas with less restrictive planning policies. Researchers recommend that such areas are also included in urban development control plans.**

[Greenbelts](#) are undeveloped open spaces that surround urban areas, usually in metropolitan regions. They are protected in order to prevent [urban](#) sprawl. Greenbelt policies prompt urban development to be more compact by prohibiting developments, which is intended to encourage developers, for example, to recycle derelict urban land and to intensify urban development within a smaller land area. Greenbelts also protect natural resources around urban areas, such as farmland, forest and recreational areas, and the ecosystem functions they provide to metropolitan areas.

In Germany, greenbelt policies are incorporated into regional plans. The Federal government delegates responsibility for urban planning and development to regional planning authorities, which can decide the strictness of their policies. This study investigated how effective regional planning policies containing greenbelt practices are at controlling urban developments in Germany. The researchers were also interested in evidence that restrictive greenbelt policies could cause new urban development to spill over into less tightly controlled areas.

The researchers used data from regional planning authorities and national databases and used a Geographical Information System (GIS) (a planning support system) to map greenbelt and urban boundaries.

They found that, in 2011, 59 of the 96 German planning regions had greenbelts as part of their regional plans. The strictness of greenbelt policies varied among the regions. They were strictly enforced in some regions, while others only required them to be considered in development schemes.

The researchers further investigated the effectiveness of greenbelts in four planning regions (Düsseldorf, Hanover, Stuttgart and Mittelhessen) in four different German states. Between these four regions, there were wide variations in the extent of the greenbelts and how they were regulated. For example, greenbelts covered 229 km<sup>2</sup> (10% of the total area) in the Hanover region and 1327 km<sup>2</sup> (25% of the total area) in the Düsseldorf region. The greenbelt areas in the Stuttgart region were almost all open space, whereas the greenbelt areas in the Düsseldorf region included small urbanised areas (mostly small villages, with fewer than 2000 inhabitants). Overall, they found that greenbelts add significant value to other planning policies, as they seemed to be effective at preserving the open space falling within the greenbelt. However, they do not necessarily contain the growth of urban sprawl or suburbanisation.

For the four regions, the researchers also calculated changes in land use from 2000 to 2010, to look for relationships between greenbelts and urbanisation, population changes and employment.

There have been concerns that greenbelt restrictions could unintentionally increase the price of core city land and push development into areas beyond the greenbelt where there are less strict planning policies. The researchers speculate that higher land prices in core urban areas are driving businesses, industry and people towards suburbs with less restrictive development policies, even in areas with declining populations. But the researchers caution that their analysis did not find strong evidence that greenbelts were responsible for this spill-over effect.

*Continued on next page.*



**11 February 2016  
Issue 446**

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**Source:** Siedentop, S., Fina, S. & Krehl, A. (2016) Greenbelts in Germany's regional plans — An effective growth management policy? *Landscape and Urban Planning*. 145: 71–82. DOI:10.1016/j.landurbplan.2015.09.002

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To cite this article/service: "[Science for Environment Policy](#)": European Commission DG Environment News Alert Service, edited by SCU, The University of the West of England, Bristol.

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They found that in communities entirely surrounded by greenbelts (more contained), there was more concentrated urban development, leading to less urban sprawl, compared with communities only partially surrounded by greenbelts. However, the correlation was rather weak, and could have been partly explained by the heterogeneity of samples. The researchers posit that the amount of contained land in German policies often leaves sufficient space for development, which would also affect these results.

They note that population decline and economic shrinkage do not necessarily coincide with less land consumption or urban development. This is because, in a decentralised planning system, many communities aiming to improve their economic situation might decide to dedicate their greenbelt land to urban development in order to stimulate new growth. If these policies failed to attract new residents, the result would be further decrease in urban density, i.e. more urban sprawl.

Based on their findings, the researchers say that successful urban development policies should:

- 1) Ensure that planning authorities regularly review and report on regional land supply and demand, based on regular population and employment forecasts, to promote the most efficient use of space.
- 2) Use a combination of 'negative' (e.g. excluding land uses from urbanisation) and 'positive' planning instruments (e.g. regulating the location/extent of developments) to directly regulate the amount of newly developed areas beyond the contained urban core. For example, quantitative targets that set a maximum for the amount of land that can be converted from non-urban to urban uses in a given time period, or density standards that require minimum densities of new development.
- 3) Create growth-control plans on an area-wide basis to avoid 'leapfrog urbanisation', whereby developments spillover from highly controlled to less controlled areas.
- 4) Develop different strategies to maintain cities as thriving and liveable places in a post-growth urban era, without encouraging the 'sprawl without growth' phenomenon.

Overall, the researchers say their analysis shows that German greenbelts do protect precious natural resources, but do not appear to be as effective in containing urban spillover effects.

