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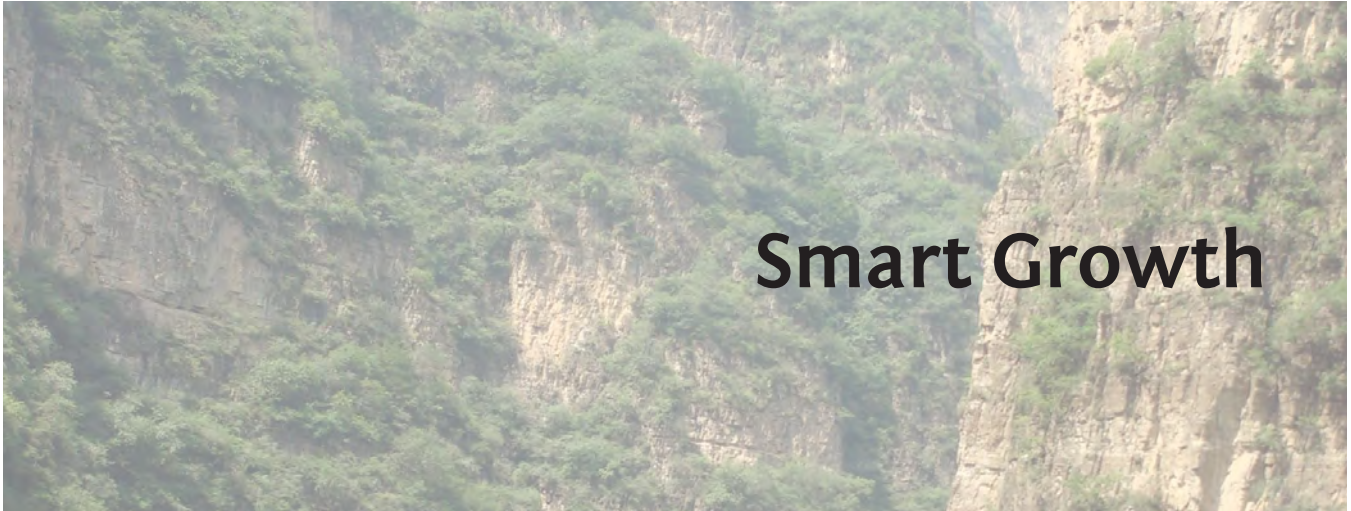
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# Smart Growth

*Smart growth describes development models designed to limit urban sprawl by creating more compact living zones that incorporate all aspects of daily life: residences, business, industry, entertainment, shops, and recreation. Smart growth is considered more sustainable because, in theory, it reduces land use and offers public transportation as an alternative to automobiles, thus cutting down on greenhouse gas emissions.*

The term *smart growth* can be understood as a collection of urban planning theories and policies created to counter environmental and social problems linked to urban sprawl (uncontrolled urban growth). Inasmuch as it is reactionary, smart growth is defined by the problems it is intended to affect, and as a result takes different forms and is used to different purposes from country to country, and even from city to city. Similarly, it is often described by different names that are used interchangeably or in conjunction with broad concepts such as the *compact city*, *new urbanism*, and *transit-oriented development*. For instance, since the 1970s growth has been managed in the Netherlands according to a policy called *clustered urbanization*. In Japan it can be found in a national policy called *urban renaissance* and in local initiatives called *machi-zukuri* (literally, “town-making”). In the United States smart growth policies can be found in initiatives to promote walkable neighborhoods and urban revitalization, and it has also been called *land-use control* and *growth management*.

As cities expand, they inevitably consume land, but they also require the investment of a significant amount of new infrastructure, such as roads, sewage systems, electrical power, and gas lines for heating and cooking, as well as a broad range of basic public services, including schools, fire stations, and police stations. When these resources and services are provided at low densities, as in suburban developments, the environmental, economic, and social

consequences can be significant. Dependence on automobiles is especially problematic for both environmental and social reasons. Automobiles create congestion, are responsible for the consumption of large amounts of fossil fuels, and can be a barrier to participation in society for those unable to drive if public transit alternatives are not available. This latter is a measurable problem in nations such as Japan, where the population is aging rapidly and residents of older suburbs are already being excluded from a range of activities. Lacking access to a vehicle can make it difficult to undertake simple tasks such as grocery shopping or visiting a doctor without relying on family members or outside assistance.

In order to overcome these issues, smart growth promotes the use of controls on the way cities grow and change over time. Broadly speaking, the intent is to ensure the social and environmental consequences of urban form are given equal weight with financial concerns in the development process.

## Origins

The beginnings of smart growth parallel a change in perspective on what constitutes desirable urban form. Its conceptual origins can be traced back to the late nineteenth-century Garden City Movement, the inspiration of the social theorist Ebenezer Howard (Hall 2002, 414–415; Hayden 2003, 202). Howard advocated the creation of self-supporting communities located outside the overcrowded industrial cities of his age, where businesses and residences could coexist in a setting that combined the best of urban and rural elements. Greenbelts and communal ownership of land were included to ensure a degree of social equity and to place a limit on growth. Unfortunately his vision was quickly transformed into one of garden suburbs rather than cities, and the relationship between city center and

periphery became one in which functions were segregated rather than integrated. Even in Letchworth, the first Garden City (founded in 1903 in the United Kingdom), which included some industry to support a local workforce, the homes of the varied social classes were carefully separated from each other. More significantly, only a few years later in Hampstead Garden suburb (begun outside London in 1907) there was not even a pretense of including industry or commerce, meaning the development was to be a commuter suburb from the start, dependant for its livelihood on the city. With few exceptions, that was to become the standard pattern of growth on the urban fringe in the decades to follow, especially in the United States.

Nonetheless the concept did have influence. Most famously it formed the basis for the British New Town program begun after the Second World War and exerted a strong influence on similar projects undertaken in Europe and even the United States in the 1960s (Hall 2002). While those developments did achieve some of Howard's goals of well-planned communities (self-sufficient in employment and housing), they were never large enough to accommodate the demand for growth in most cities. In the period following the Second World War, development more typically took the form of suburban bedroom communities, far from places of employment and shopping and increasingly automobile dependent. This was true in Europe, Japan, and the United States, though there was a noticeable lag as result of the time in which cars and trucks became commonplace in each nation.

In the 1960s and 1970s patterns of urban growth in the developed world began to change radically. Cities were dispersed under the influence of suburbanization, and businesses and other functions followed both their workforce and their customers to the urban fringe. The early response to that change was to attempt to manage or limit growth, but by the 1980s focus shifted toward planning to accommodate it. At the same time awareness of environmental concerns was growing, culminating with publication in 1987 of the Brundtland Report, which provided the first modern definition of sustainability: "...development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987).

It was in this context that urban planners and theorists began to search for policies and urban typologies that would allow them to create a sustainable urban form, but they were unsure how to translate that ambition into actual policies and plans. A number of research projects were begun by academics to test the possibilities, most focusing on the role of energy use in relation to urban form. Typical of research undertaken at that time was a seminal work by the Australian researchers Peter G. Newman

and Jeffrey R. Kenworthy (1999), who undertook a global project that showed the least energy-intensive cities in the world were those that combined relatively high density with rail-based public transport. According to their criteria, Hong Kong and Tokyo were the most exemplary. European cities including Paris, Amsterdam, Copenhagen, and London performed well, with American cities, such as Houston and Phoenix, appearing to be the most serious wasters of both energy and land.

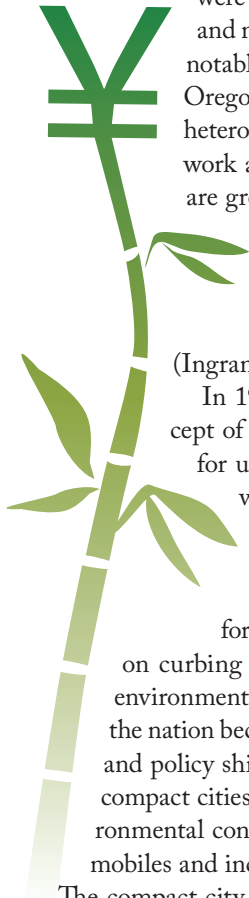
Based on these and similar insights, a number of new theories were advanced in the 1980s, many of them reviving and adapting the ideas of Howard's Garden City. In

the United States, Peter Calthorpe proposed the *pedestrian pocket* (also called *pedestrian-oriented development* and *transit-oriented development*), a community that mixed both housing and commercial functions and located all homes within 400 meters (a quarter mile) of a transit stop and a commercial area. The careful mixing of land uses and easy access to public transit was intended to make communities more walkable and limit the need for automobiles in daily life. The concept was favorably received and implemented in several cities in the United States, most famously forming the basic structure for the master plan of the city of Sacramento, California.

At the same time the urban planners Andres Duany and Elizabeth Plater-Zyberk launched the New Urbanist movement (sometimes called a *neotraditional development*) with the development of Seaside, Florida (founded in 1979). New urbanism shares the same high-density mix of land use and easy access to public transportation as the pedestrian pocket. Additionally it advocates for the use of a traditional and clear civic structure in its plans and often mandates for traditional architectural styles and materials in its buildings. Seaside proved to be a commercial success, and new urbanism became a model for developments across the United States. In Europe the same movement is called *urban renaissance* and is strongly supported by Prince Charles, who advocated for creation of the new town of Poundbury (begun in 1988) in the county of Dorset, England, according to a master plan by the traditionalist planner Leon Krier. Similar examples were also built across Europe, including Val d'Europe (1995) outside Paris, and Kirchsteigfeld (1993), outside Potsdam, Germany.

The above examples are best understood as design-oriented developments. Policy-driven examples also exist. For example, from the 1980s onward, smart growth policies





were officially adopted by several cities, states, and municipalities in the United States (most notably by the states of Florida, New Jersey, Oregon, and Maryland). As policies they are heterogeneous, and each state or city tends to work according to different priorities, but all are grounded in a desire to promote compact development, preserve environmental quality, provide transportation options, support affordable housing, and improve fiscal health of the area (Ingram et al. 2009).

In 1966 the Netherlands adopted the concept of *concentrated deconcentration* as the basis for urban growth for the entire country. It was used as a tool to channel development outside existing cities into relatively dense satellite towns, thereby preserving green space. This early policy for containing urban growth did not focus on curbing automobile use, nor did it contain an environmental agenda. This changed in the 1980s as the nation became more aware of sustainability issues, and policy shifted slightly by focusing on creation of compact cities that were more able to deal with environmental concerns such as reducing the use of automobiles and increasing access to public transportation. The compact city shares the same goals as the examples previously reviewed: high density, mixed land use, and ease of access to public transportation.

Japan too adopted the compact city model as a part of its urban renaissance policy in the 1990s. It is notable that the purpose of this planning policy is related to managing an aging population and is not primarily a tool to govern urban growth.

That smart growth was implemented so widely ensured the development of a number of practical experiments focusing on the creation of sustainable urban form. The focus for researchers since 2000 has been on measuring the successes and failures of those models and proposing alternatives and modifications.

## Characteristics of Smart Growth

There are many varieties of smart growth, but most versions share the following characteristics:

- **Mixed land use:** Residential, commercial, and even some industrial activities are encouraged in close proximity, and even in the same buildings.
- **Modal choice for transportation, public and private:** Public transportation, in the form of rail or buses, is pro-

vided along with infrastructure that encourages cycling and/or walking.

- **High residential and employment densities:** Jobs and homes are close together.
- **Continuous compact development:** Leapfrog development is not permitted; growth occurs next to existing communities and without gaps. This ensures connectivity between communities and helps to protect open space, farmland, and other natural resources.
- **Limits on growth and policies to encourage development in existing areas:** Incentives supporting redevelopment of older sites in a city or town are combined with growth boundaries to set physical limits on expansion.
- **Mixing of socioeconomic groups:** Policies are used to encourage developments that mix housing types.

Collectively these elements are designed to improve access to the requirements of daily life, from employment and shopping to entertainment and community. There may also be a regional planning component that establishes growth boundaries and land-use restrictions to ensure municipalities tackle the issue of sustainability in a coordinated fashion.

The alternative to smart growth is urban sprawl—defined by leapfrog development (where development takes place noncontiguously, often jumping further and further from an existing city), by lack of control in terms of the direction and shape of urban expansion, and by strict separation of land-use functions. Patterns of this sort are assumed to be unsustainable.

## Benefits of Smart Growth

Smart growth is ultimately a tool designed to encourage development of urban forms with a high degree of accessibility for all residents of a community to all the institutions and events in that community. This has environmental, social, and economic benefits.

### Environmental Benefits

Studies indicate that smart growth can reduce the number of vehicle miles traveled by urban residents. This is significant because reduced dependence on automobiles (and simultaneous support for walking, cycling, and public transportation) logically leads to a reduction in energy use and a corresponding reduction in consumption of greenhouse gas-producing fossil fuels. Further, by ensuring that development is contiguous and undertaken at high densities, the costs of infrastructure and services can be reduced significantly and the consumption of resources curtailed. Some supporters also claim a health benefit that results from reduced car use and increased walking or cycling.

At the same time open space and green areas including forests and farmland are preserved rather than consumed. In North America, perhaps the best-known example of smart growth can be found in Portland, Oregon, which uses a greenbelt to enforce a limit on urban growth, while simultaneously supporting a public transportation system. More progressive examples can be found in places such as the suburban community of Vauban (completed in 2006) in Germany, where cars are forbidden on most streets, and shops and streetcars are within walking distance of all homes. Residents walk or use bicycles to shop and commute by rail to work, thereby creating a lifestyle that does not require as much energy or resources to maintain or produce as much pollution.

### Economic Benefits

Because urban economies are so complicated, isolating the economic benefits of even simple policies is difficult. Studies seem to show, however, that regions and cities that follow smart-growth policies in the United States can perform better economically than those that do not (Cervero 2000; Muro and Puentes 2004). Cities can also save significantly by avoiding the costs of investing in and maintaining inefficient infrastructure and services for low-density areas. The cost of roads, sewers and water lines, garbage collection, postal services, and schools are all affected by land-use patterns and density and can place a strain on municipal governments tasked with providing such services. Some scholars suggest that economic benefits might accrue in settings where businesses are able to trade more easily (because they are closer together) and where residents are attracted to a higher quality of life.

### Social Benefits

The social consequences of smart-growth policies are different from country to country. In the United States and in Europe, smart growth is used to eliminate the segregation of social groups by mixing housing types for various economic levels in a single area. In Japan, the focus is instead on ensuring that elderly residents are able to maintain a high standard of living even if they are not able to drive. Encouraging patterns of mixed land use makes both of these ambitions possible.

### Issues

Evaluating the impact of smart growth is difficult, first, because the concept is heterogeneous, and second, because agencies other than spatial planning can have a profound impact on urban development. Isolating causes and effects is not always straightforward. Research exists that both

supports the claims of smart growth and refutes them. Where problems have been uncovered in most instances, the issue can be understood as a gap between the intent of the concept and its effect after implementation. In the Netherlands, for example, even though planners were able to mandate mixed land-use practices and provide public transportation alternatives, large numbers of Dutch people chose to drive rather than ride. To be fair, the policy was successful on many counts: populations in urban centers were largely maintained, growth on the urban fringe was controlled, and housing was developed in an orderly manner. Nonetheless, planning regulations were unable to stop development of employment centers along highways, and many residents today require a car to commute to work. At the same time a growing demand for lower-density housing has worked against the goals of the compact city, as this has a tendency to produce mono-functional housing areas (Bontje 2001). These developments suggest a failure of policy, but it has also been proposed that such patterns are actually the result of the substantial increase in real wealth of Dutch citizens in the 1980s and afterward (Van der Burg and Dieleman 2004). In response to these deficiencies the Dutch government expanded the scale of its urban planning policies in 2003 to ensure inclusion of the transportation corridors that connect communities in an urban network. While the compact city remains a planning goal, the need for a regional perspective has been acknowledged.

Similar problems can be found in both the United States and Europe. Ironically, in a study of the neotraditional town of Poundbury in the United Kingdom, it was found that car use was higher in the compact development than in the adjacent rural community (Watson et al. 2004). Similar outcomes have been found in other parts of the United Kingdom and in the United States, with the suggestion that compact development does not fit with modern household structure, in which it is now common for more than one family member to be employed, often in distant parts of the city, therefore requiring more than one car to accommodate everyone (Jarvis 2003).

### The Future of Smart Growth

A significant amount of research is focused on measuring the effects of smart growth policies as applied to real urban situations around the world. (See, for example, Bontje 2001; Ingram et al. 2009; Jenks and Dempsey 2005). Policies and theories will no doubt be adjusted as results from that work become available. In the Netherlands, as cited above, the focus has already shifted from the compact city to the urban network, which is intended to better reflect the behavior patterns of the country's urban residents.

Some theorists suggest that the best way toward sustainability is to combine the land-use policies of smart growth with financial disincentives to limit auto use, such as increased gasoline taxes and parking fees. These may well come to pass. Nevertheless, the lessons learned from research conducted in the field appear to be that policies need to be flexible, capable of adjusting to changing patterns of behavior as well as to the special needs of each community, wherever it is in the world. While there is little doubt that urban form affects sustainability, it seems likely that the evolution of smart-growth models will continue.

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See also Automobile Industry; Bicycle Industry; Building Codes, Green; Cement Industry; Development, Urban; Energy Efficiency; Facilities Management; Local Living Economies; Municipalities; Property and Construction Industry; Public Transportation

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