Tackling urban sprawl: towards a compact model of cities?

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Le nouveau visage de la France : la ville envahit la campagne
why sprawl matters?

* Sprawl creates environmental, social and economic impacts for both the cities and countryside of Europe

* Seriously undermines efforts to meet the global challenge of climate change

* Synonymous with unplanned incremental urban development characterised by low density mix of land uses on the urban fringe

* Classically, urban sprawl is a US phenomenon associated with the rapid low-density outward expansion of US cities fuelled by the rapid growth of private car ownership and the preference for detached houses with gardens

* European cities have traditionally been much more compact, developing a dense historical core shaped before the emergence of modern transport systems
**why sprawl matters?**

- But today urban sprawl is a common phenomenon throughout Europe and there is no apparent slowing in these trends - urban areas particularly at risk include southern, eastern and central parts of Europe.

- Sprawling nature of Europe's cities is critically important because of the major impacts evident in increased energy, land and soil consumption.

- Impacts that threaten both the natural and rural environments, raising greenhouse gas emissions that cause climate change, and elevated air and noise pollution levels which exceed agreed human safety limits.

- Urban sprawl produces many adverse impacts that have direct effects on the quality of life for people living in cities.
Historically, growth of cities driven by increasing urban population – but in Europe today, even where there is little or no population pressure, a variety of factors are still driving sprawl.

These are rooted in the desire to realise new lifestyles in suburban environments, outside the inner city. Global socio-economic forces are interacting with more localised environmental and spatial constraints to generate the common characteristics of urban sprawl evident throughout Europe today.

Sprawl has accelerated in response to improved transportation links and enhanced personal mobility – making it possible to live increasingly far from city centres, while retaining all the advantages of a city location, or to live in one city and work in another.

**why are cities sprawling?**
Drivers of urban land development (1990-2000) for cities greater than 50,000 inhabitants.
why are cities sprawling?

* Mix of forces include both micro and macro socio-economic trends such as the means of transportation, price of land, individual housing preferences, demographic trends, cultural traditions and constraints, attractiveness of existing urban areas, and, not least, the application of land use planning policies.

* Overall, evidence suggests that where unplanned, decentralised development dominates, sprawl will occur in a mechanistic way.

* Conversely, where growth around the periphery of the city is coordinated by strong urban policy, more compact forms of urban development can be secured.
compact city solutions

Dense and proximate development patterns

- Urban land is intensively utilised
- Urban agglomerations are contiguous or close together
- Distinct border between urban and rural land use
- Public spaces are secured

Urban areas linked by public transport systems

- Effective use of urban land
- Public transport systems facilitate mobility in urban areas

Accessibility to local services and jobs

- Land use is mixed
- Most residents have access to local services either on foot or using public transport

.... not only for small- and medium-sized cities, but it is relevant to cities of all sizes, even to mega-cities!
compact urban sustainability

* **environmental benefits**
  * Shorter inter-urban distances and less automobile dependency help reduce energy consumption and CO2 emissions
  * Conserve farmland and natural biodiversity around urban areas
  * Create more opportunities for urban rural linkages - nearby farming encourages local food consumption and reduces food transportation - helps reduce CO2 emissions

* **economic benefits**
  * Increase efficiency of infrastructure investment and reduce the cost of maintenance, particularly for line systems (transport, energy and water supply, waste disposal etc)
  * Easier access to the diversity of local services and jobs
  * High-density, combined with diversity of functions stimulates knowledge diffusion and economic growth
  * Generates new green needs that promote technological development and innovation, and thus stimulate growth

* **social benefits**
  * Shorter travel distances on public transport systems - lower travel costs - facilitates the mobility of low-income households
  * Local services and jobs nearby contribute to a better quality of life
7th EAP provides an EU vision for land and soil and city management for 2020 and beyond:

- **Priority 1**: to protect, conserve and enhance the EU’s natural capital. Objective by 2020:
  - “land is managed sustainably in the Union, soil is adequately protected and the remediation of contaminated sites is well underway;”
- **Priority 2**: To turn the EU into a resource-efficient, green and competitive low carbon economy
- **Priority 3**: To safeguard EU citizens from environmental-related pressures and risks to health and well-being
- **Priority 9**: To enhance the sustainability of the Union’s cities. Objective by 2020:
  - “a majority of cities in the Union are implementing policies for sustainable urban planning and design, including innovative approaches for urban public transport and mobility, sustainable buildings, energy efficiency and urban biodiversity conservation”
政策响应

* **EU Roadmap to a Resource Efficient Europe** 路线图的里程碑，关于土地和土壤：‘到2020年，欧盟政策将考虑其直接和间接对欧盟及其全球土地使用的影...

  no net land take by 2050

* **DG Regional and urban policy** – 开发欧盟城市议程
* **Cohesion policy 2014-2020**
* 强化集成城市政策，以加强城市的作用

* **EU initiatives for cities**，如欧洲绿色首都奖、市长契约、欧盟城市适应项目、欧洲可持续城市平台和智能城市创新伙伴关系
policy strategies

* Set explicit compact city goals
* Encourage dense and contiguous development at urban fringes
* Retrofit existing built-up areas – brownfield sites
* Enhance diversity and quality of life in urban centres
* Minimise adverse negative effects

* Seek win-win solutions via city management
urban management challenges

* But complexity of city management

* **Drivers of change** – global and local
* finite resources and resource efficiency
* climate change impacts and environmental vulnerability
* demographic change and social cohesion
* economic and financial crisis

* **Complex** conditions for urban management
* **Interconnectedness** of social, economic and environmental challenges in urban context
* **Barriers** to management sustainable urban development
urban complexity + integrated urban management
urban mobility 2020 – business as usual

Daily trips in cities (billions)

- **World**
  - Public transport: 14% (1.68 billion)
  - Non motorised: 32% (3.84 billion)
  - Private motorised: 54% (6.72 billion)

- **Europe**
  - Public transport: 15% (0.78 billion)
  - Non motorised: 23% (1.17 billion)
  - Private motorised: 62% (3.78 billion)

- **Asia**
  - Public transport: 16% (0.96 billion)
  - Non motorised: 36% (2.16 billion)
  - Private motorised: 48% (2.88 billion)
urban mobility 2025 – PTx2

Daily trips in cities (billions)

- **World**:
  - Public transport: 32%
  - Non motorised: 36%
  - Private motorised: 32%

- **Europe**:
  - Public transport: 30%
  - Non motorised: 40%
  - Private motorised: 34%

- **Asia**:
  - Public transport: 45%
  - Non motorised: 21%
  - Private motorised: 34%
<table>
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<th>2005</th>
<th>2025 PTx2</th>
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<td>700 MToe</td>
<td>720 MToe</td>
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<td>140 MToe</td>
<td>110 Mtoe</td>
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<td>20%</td>
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<td>124 Mtoe</td>
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<td>(% world total)</td>
<td>18%</td>
<td>29%</td>
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delivering compact city solutions

* urban governance principles – green economy and sustainable development
* integrated decision making
* smart city solutions
urban governance principles – green economy
integrated flexible multi-scalar governance

Old fixed action space - hardware policies: government

- Central states
- Provinces
- Administrative cities

New flexible action space - software policies: governance

- European Union
- Transborder & macro-regions
- Metropolitan areas
- Neighbourhoods

Adapted from Jacquier, 2010
integrated decision making

**Evaluation and Reporting**
Core document: Evaluation Report

**Implementation and Monitoring**
Core document: Sustainability Programme

**Political Commitment**
Core document: Council Approval

**(Update of) Baseline Review**
Core document: Sustainability Report

**Target Setting**
Core document: Sustainability Targets
smart city solutions

* **smartly governed cities** – focus on the need for information and intelligence to support decision-making regarding alternative options for the development of the community

* **EU project experience** – ICT enabled urban governance to support **assessment** of socio-economic and environmental impacts of territorial development

* to support **stakeholder engagement** regarding alternative development options

* to support **political decision making** and plan implementation
EU smart city projects

- URBIS (ICT- PSP)
- Urban Atlas (ESA/EU)
Focus – brownfield/vacant land identification – alternatives to greenfield development

Supported by common pan-European land development potential assessment and reuse strategies

Delivered by development of Urban Atlas for 310 largest cities of Europe

Operational local level services – urban planners and development industry

Strategic pan-European services - EU level and development industry applications
Urban Atlas – EU28
Urban Atlas operational service offering highly detailed urban land use maps for the largest (310) city-regions in Europe (EU28)

- Urban Atlas provides pan-European, common and comparable land-use classification of city-regions
- Allowing comparison of information on density residential areas, commercial and industrial zones, extent of green areas, exposure to flood risks, and monitoring of urban sprawl

Copernicus operational services (ESA/EU)
Controlling urban sprawl, reusing vacant land, maintaining urban density, in order to provide the financial basis for public transport.

Increased use of public transport in cities to secure policy co-benefits of GHG reduction, energy savings - and also healthy cities.

Urban sprawl model of the management of land use - transport relationship – secures policy co-benefits - increasing public transport.

Solutions articulated by the land use - transport relationship – reinforcing the need for integrated management of the territory via spatial planning.

Policy solutions emphasise the interconnectedness of drivers of change, pressures and environmental impacts.
THANK YOU!

For any further information:

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