

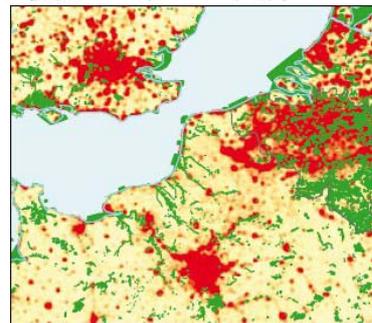
# Land policy against urban sprawl in Germany

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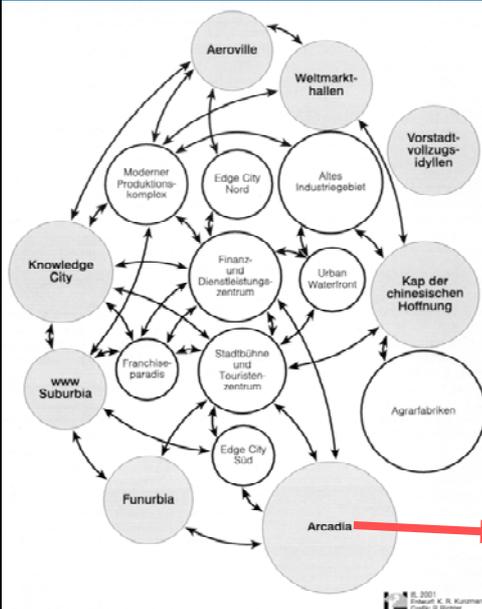
### Land policy against urban sprawl in Germany

1. Urban sprawl – characteristics, trends and drivers
2. The region is the town - challenges and impacts
3. The 5 C-Strategies against urban sprawl
4. Conclusions

- Urban sprawl is commonly used to describe physically expanding urban areas.
- Physical pattern of low-density expansion of large urban areas, under market conditions, mainly into the surrounding agricultural areas.
- Sprawl is the leading edge of urban growth and implies little planning control of land subdivision.
- Development is patchy, scattered and strung out, with a tendency for discontinuity, leaving agricultural enclaves.
- Sprawling cities are the opposite of compact cities: full of empty spaces that indicate the inefficiencies in development and highlight the consequences of uncontrolled growth.
- No common definition and concept to measure urban sprawl



Source: EEA Report 2006



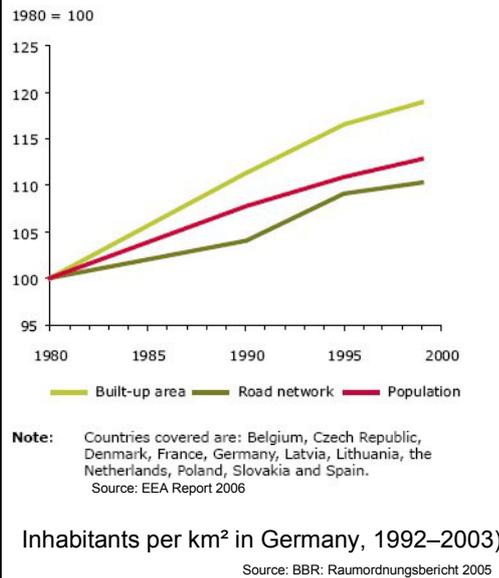
### Regional level:

- The region is the town
- Specialization and suburbanization of urban functions

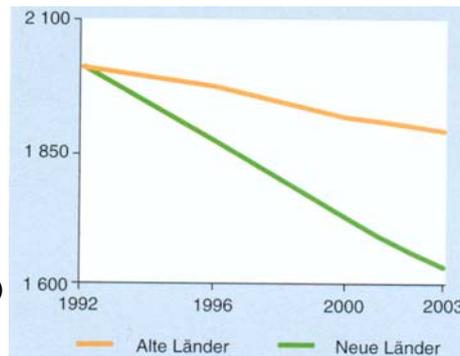
### Local level:

- Single house areas
- Low density





- Expansion of urban and infrastructure land
- Decreasing density of buildings and inhabitants



## 1. Economic factors

- Economic growth (?)
- Globalization
- European integration
- Price of land
- Availability of cheap agricultural land
- Competition between municipalities

## 2. Demographic factors

- Population growth
- Increase in household formation
- Rising living standards
- More space per person
- Housing preferences

## 3. Deficits of inner urban areas

- Poor air quality
- Noise
- Small apartments
- Unsafe environments
- Social problems
- Lack of green open space
- Poor quality of infrastructure

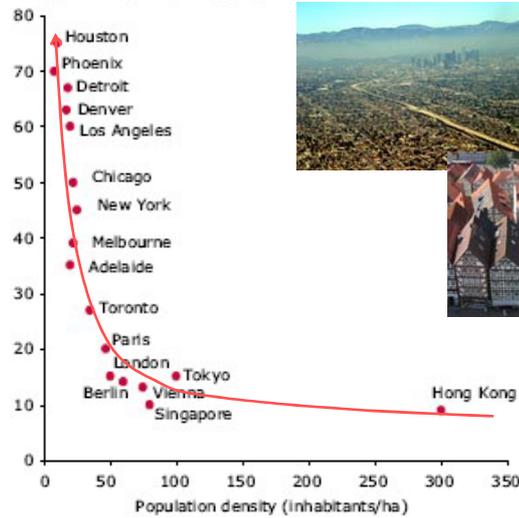
## 4. Transportation

- High rate of private car ownership
- Availability of roads
- Low cost of fuel
- Poor public transport

## 5. Regulatory frameworks

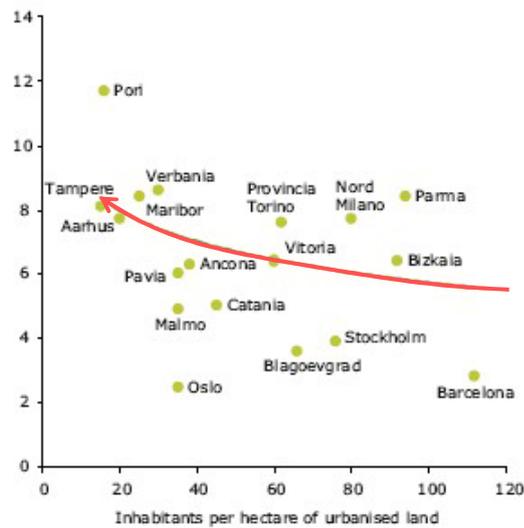
- Weak land use planning
- Poor enforcement of existing plans
- Lack of horizontal and vertical coordination and collaboration

Energy consumption per capita (1 000 millions of joules)



Source: Newman & Kenworthy 2006

Total CO<sub>2</sub> emissions per capita (tonnes)



Source: Ambiente Italia 2005

Density (population + jobs per hectare)	Annual energy consumption for travel (mega joules per inhabitant)	Cost of transport (% of GDP)
< 25	55 000	12.4
25 to 50	20 200	11.1
50 to 100	13 700	8.6
> 100	12 200	5.7

Source: Newman & Kenworthy 2005

## Ecological and environmental impacts

- Land sealing and losses of soil
- Losses in fauna and flora
- Consumption and fragmentation of open countryside and green spaces
- Increased consumption of energy and greenhouse-gas emissions
- Negative impact on global and urban climate

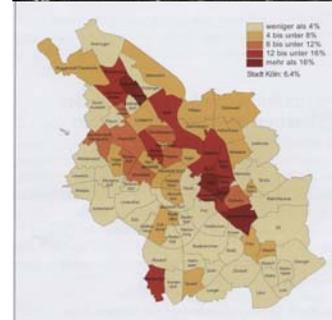
## Urban impacts

- Rapid expansion of urban areas and decreasing density in inner urban areas
- segregation of urban functions and facilities
- Increasing demand on road infrastructure
- Decreasing demand on public transportation
- Increasing costs of transportation



### Impacts on the society and urban economy

- Social segregation and fragmentation
- Negative impact on urban quality of life of citizens
- Lack of creative milieus
- Negative impact on the capacity of the economy (innovation and growth)
- Increasing vulnerability and risks



Cologne, Germany (2006):  
Turkish people in the inner city

The 5 C-principles for the implementation of strategies against urban sprawl:

1. Containment – restricting the urban areas by zoning
2. Cooperation – collaboration between the public and private sectors within a regional land policies
3. Concurrency – higher quality of development by economic instruments (e.g. Transferable Development Rights (TDR))
4. Conversion – reuse of brown field land within a cycle land use strategy
5. Carrots – incentives for inner urban development e.g. by providing high standards of infrastructure



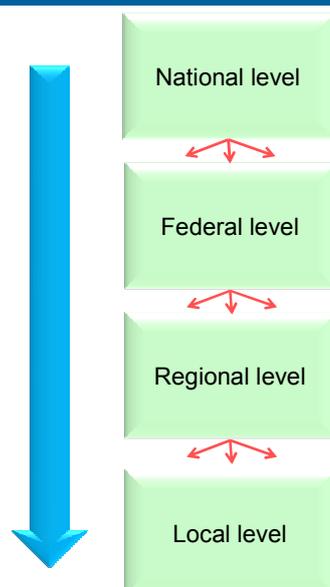
- Urban sprawl land consumption grow despite of well-established land use policy.
- The present instruments based on command and control have been only partially successful in preventing.
- Need for economic instruments in addition to planning tools:
  - **Financial instruments** (e.g. land use tax, land tax, fees for land use or land sealing and de-sealing benefits )
  - **Quantity instruments** (e.g. Transferable Development Rights (TDR))
- Basis of economic instrument in spatial planning are the **external costs**: both extensive and intensive land use cause external effects (external costs)
- **Successful experiences** with economic instruments with environmental policies (waste water fees based on the principle, who causes the impacts has to pay; transferable CO<sub>2</sub> -contingents)



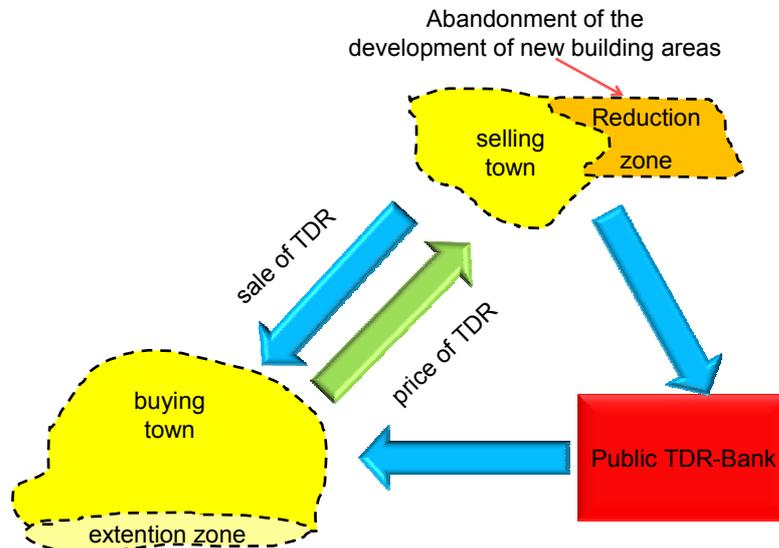
- Early concepts of Coase (1968) and Montgomery (1972)
- Possibilities to transfer the experiences in US since 1968 are limited because of the legislation concerning land use rights
- Discussion of TDR in Germany since 2003, to integrate market mechanism in local and regional planning
- Background: Two central targets of environmental land use policy in Germany:
  - **Quantity target**: decrease of land consumption for urban and transportation demands on max. 30 ha/day by 2020
  - **Quality target**: relation of inner development to external development 3 : 1

**Concept:**

1. Definition of absolute limit of quantity of total building land in one period (e.g. 30 ha/day)
2. First allocation of Development Rights by the following criteria:
  - a). socio-economic and space parameters,
  - b). land use within the last planning period or
  - c). ecological parameters.
3. Trade of Development Rights directly between the communities and between the communities an TDR-Bank



- Multilevel-model
- First allocation of Development Rights
- Top-down to achieve the quantity target
- Separation of land contingents for
  - building suites (inhabitants, area etc.)
  - regional demands (regional infrastructure)
  - reserve contingents for special targets



- The 30 ha-quantity **target** can be achieved
- TDR effect only the **growth rate** of land consumption, the existing urban land use can not be reduced
- Only market orientated strategy is in opposite to the current principle of **waging** within the planning process
- The **guiding** of the quality of land use, especially the guiding of the places are insufficient
- The results for the settlement structure will not fulfill the demands of a **polycentric concentration** target of sustainable development
- Negative impacts in suburban regions with **high growth rate**
- What are the **Impacts** on the other land saving strategies and measures of spatial development?
- Are there **incentives** for communities and how will be the **acceptance** on the local level of the communities?

- Urban sprawl as very **inefficient** form of land use and consumption of landscape is of political interest in Germany since the 1970s
- **Policy-mix** is needed: Combination of public policy law, planning, nature protection law and economic instruments
- Economic instruments are useful to **support the realization of spatial planning** and necessary to achieve the quantity 30 ha-target until 2020
- Transferable development rights can **not replace the planning instruments** and nature protection law, but they have additional effects on land allocation.
- The TDR are generally realistic, but a **lot of questions** concerning the organization, the methodical approach and the law have to be investigated.

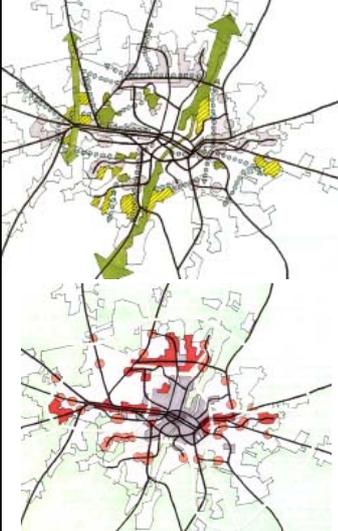
Thank You very much!



**Strategy: Mix and integration of different Policies**



- comprehensive city development plan: compact - urban - green
- regional cooperation in land management
- stakeholders' involvement in city planning;
- emphasis on reuse of vacant brownfield land
- continuously improving public transport with as few new roads as possible;
- consequent land management



Munich – development plan 2005  
Green – compact - urban



Stuttgart 2006

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**Inner urban development**



Strategy inner urban development by reuse of brown field land:

- military areas
- commercial areas
- transportation areas



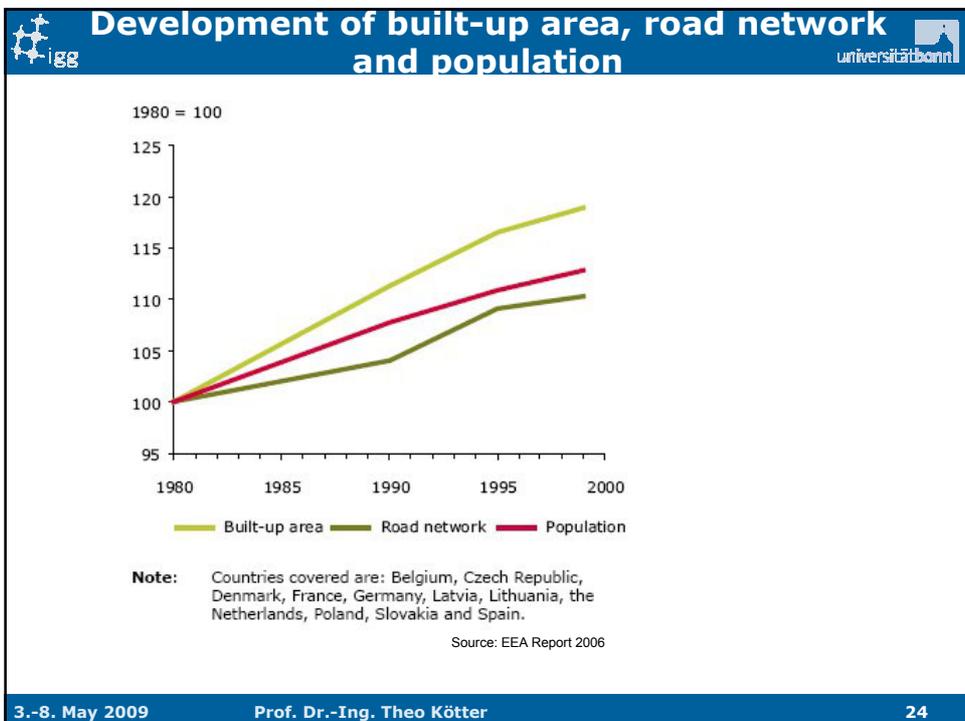
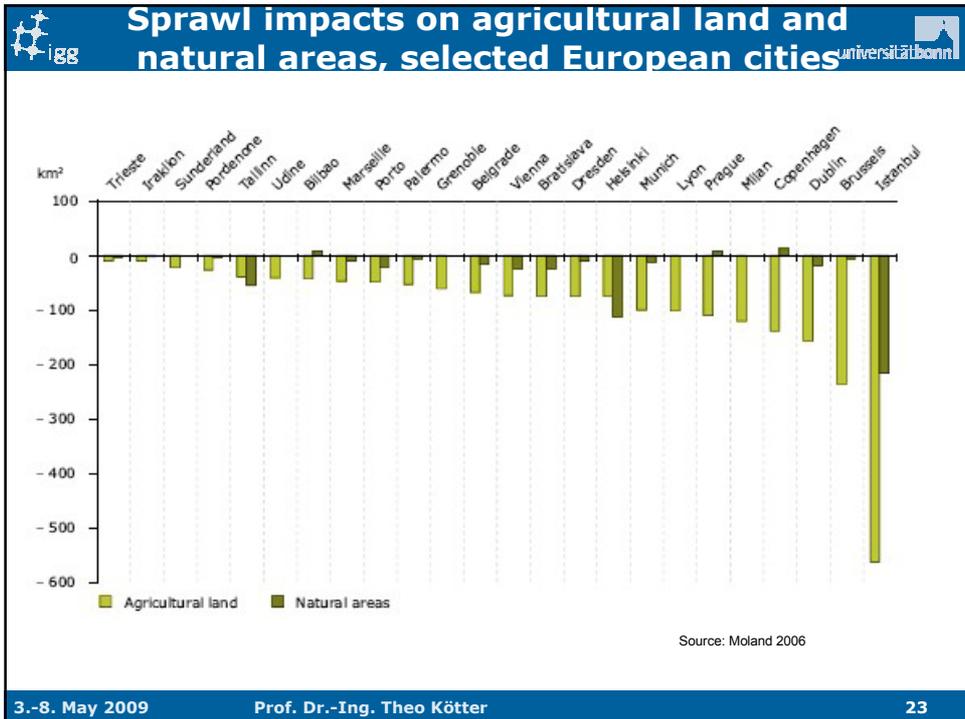
Munich – development plan 2005  
Green – compact – urban



Conversion of a former container terminal

Source: [www.stmugv.bayern.de](http://www.stmugv.bayern.de)

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**Time lags and uneven development**  
Urban and infrastructure development

- 1 to 5 %
- 5 to 10 %
- More than 10 %

Urban zones 1990

- More than 50 000 people

Green background index

- 0 to 60 %
- 61 to 100 %
- No data

Source: EEA Report

- Expansion of urban and infrastructure land
- decreasing density of buildings and inhabitants

Urban sprawl in Germany, Poland and Czech Republic (1990–2000)

Inhabitants per km<sup>2</sup> in Germany, 1992–2003

Year	Alte Länder	Neue Länder
1992	~1950	~1950
1996	~1900	~1800
2000	~1850	~1700
2003	~1820	~1650

Source: BBR: Raumordnungsbericht 2005

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Annual growth in %

Annual growth of built-up areas from the mid-1950s to the late 1990s, selected European cities

Source: EEA Report 2006

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