

## Economic Impacts of Urban and Infrastructure Development

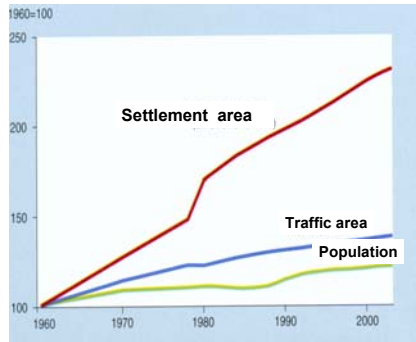
**TS 8B – Urban Regeneration**  
 Wednesday, 16 May 2007

Prof. Dr.-Ing Theo Kötter, Bonn

## Economic Impacts of Urban and Infrastructure Development

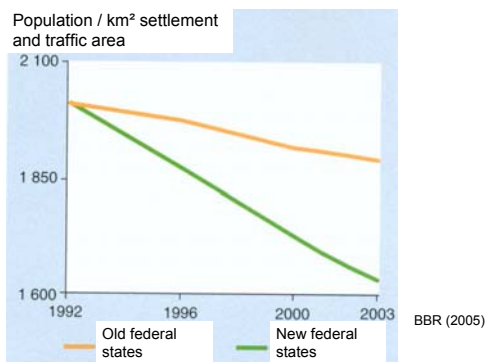
1. Trends of settlement development
2. Interaction between settlement development and cost of infrastructure
3. Calculation of infrastructure costs
4. Conclusion

### Trends of settlement development



BBR (2005)

### Trends of settlement development



BBR (2005)

### Index of social costs of the dispersen settlement development

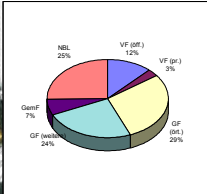
Costs / Burden per inhabitant (IH) after cost categories (compared with urban location (=100) with high density and pedestrian-, bicycle- and public transit- orientation	Settlement structure suburban location, decentralized, disperse, autooriented
<b>Economical costs</b>	
of technical settlement infrastructure (roads, pathways, power mains)	200 - 300
of social settlement infrastructure	100 - 150
of public transportation	200 - 300
of personal transportation	150 - 200
of freight transportation incl. services such as post office, waste disposal service etc.	150 - 200

As per Apel (2005)

### Index of social costs of the dispersen settlement development

Costs / Burden per inhabitant (IH) after cost categories (compared with urban location (=100) with high density and pedestrian-, bicycle- and public transit- orientation	Settlement structure suburban location, decentralized, disperse, autooriented
<b>Ecological and social costs</b>	
Consumption of land for settlements and traffic (m <sup>2</sup> /IH)	300 - 400
Sealed surface (m <sup>2</sup> /IH)	200 - 300
Fragmenting the landscape	> 300
Energy consumption (building and traffic)	200 - 300
Emissions (air pollutant ) (kg/IH)	150 - 200
Traffic noise	100
Traffic accidents	100 - 200
Loss of security in the public area (declining pedestrian frequency)	> 300

## Housing area Passau Kohlbruck



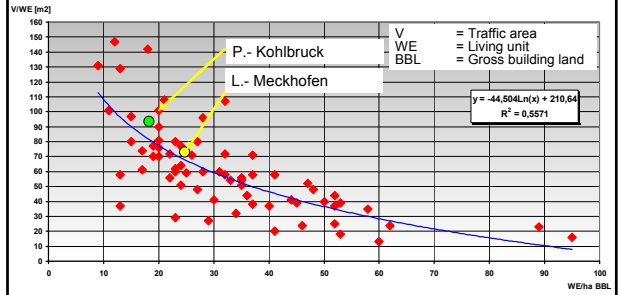
13,4 ha (17,5 ha)  
350 HU (housing Units)  
1.000-1.200 inhabitants  
gross construction density:  
26,1 HU/ha (20 HU/ha)



Department of Urban Planning and Real Estate Management,  
Prof. Dr.-Ing. Theo Kötter



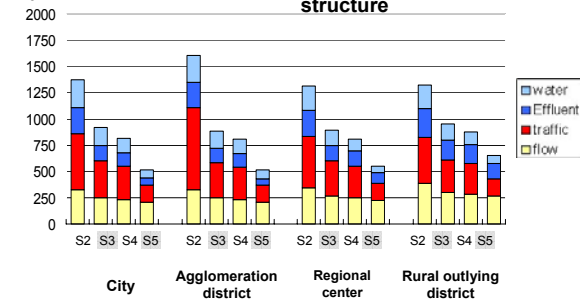
## Relation of traffic area and urban density



Department of Urban Planning and Real Estate Management,  
Prof. Dr.-Ing. Theo Kötter



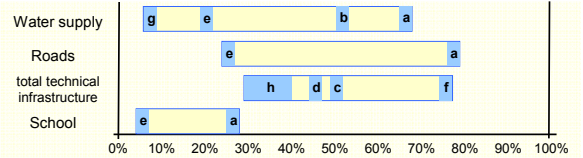
## Costs of infrastructure in Switzerland depending on type of settlement and building structure



Department of Urban Planning and Real Estate Management,  
Prof. Dr.-Ing. Theo Kötter



## Cost reduction potential by influencing the settlement structure



- a American Farmland Trust (1996)
- b Natural Resources Defence Council (1998)
- c Ecoplan (2000)
- d Real Estate Research Corporation (1974)
- e Parsons Brinckerhoff... ECONW (1998)
- f Doubeck Zanetti (1999)
- g Burchell (2002)
- h Doubeck et al. (1991)

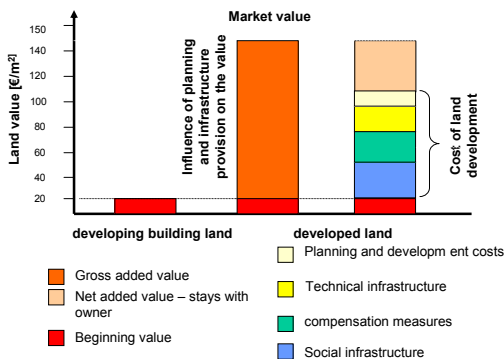
Comparison of the infrastructure burden of the most inappropriate settlement form  
Schiller/Siedentop (2005)



Department of Urban Planning and Real Estate Management,  
Prof. Dr.-Ing. Theo Kötter



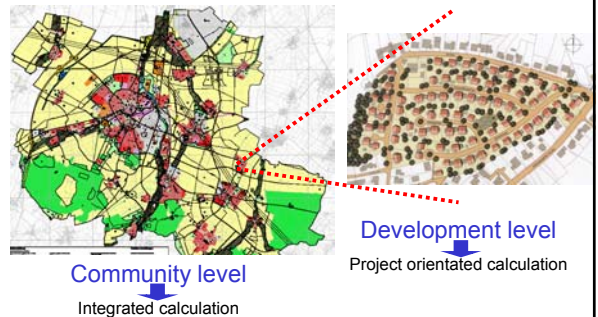
## Elements of the costs of building land



Department of Urban Planning and Real Estate Management,  
Prof. Dr.-Ing. Theo Kötter

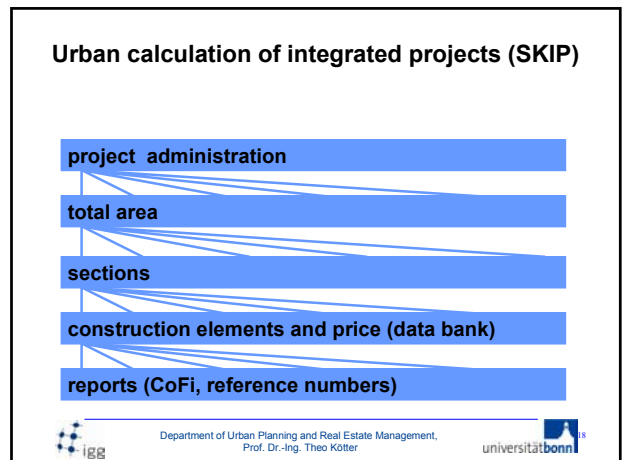
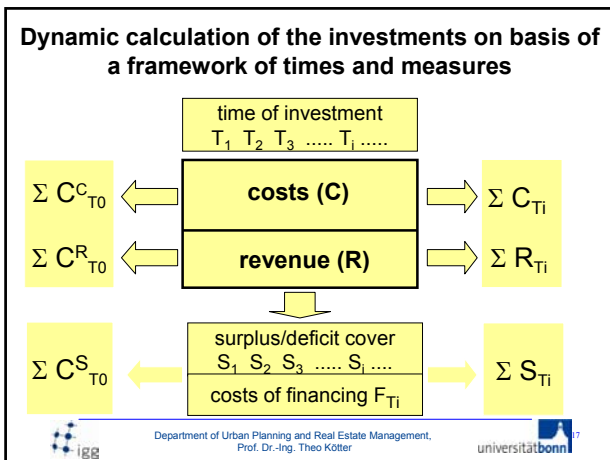
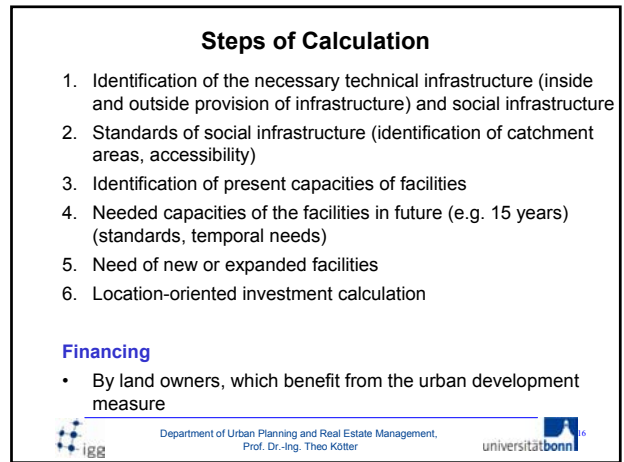
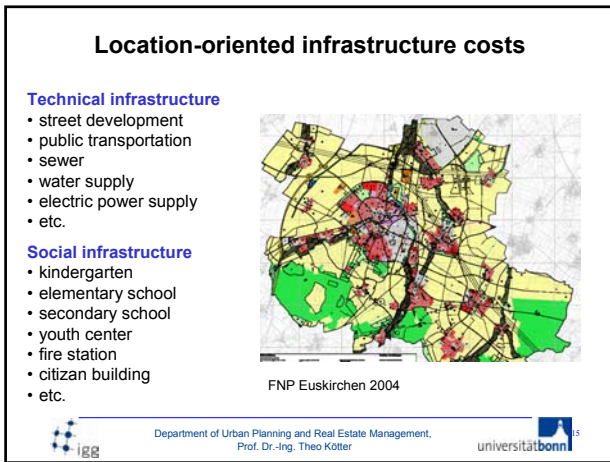
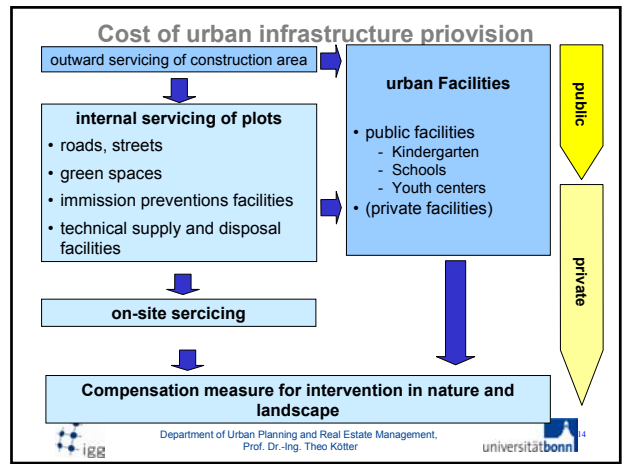
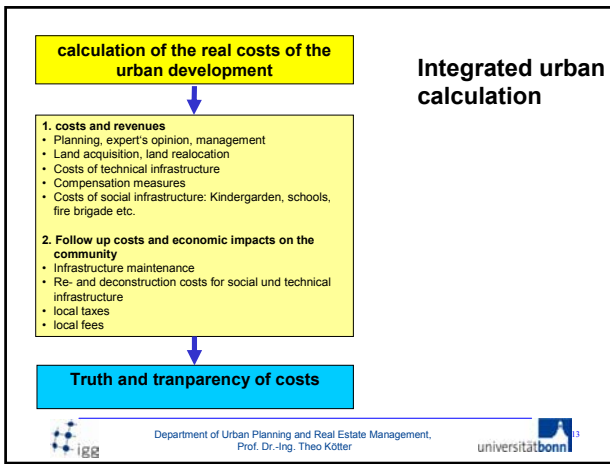


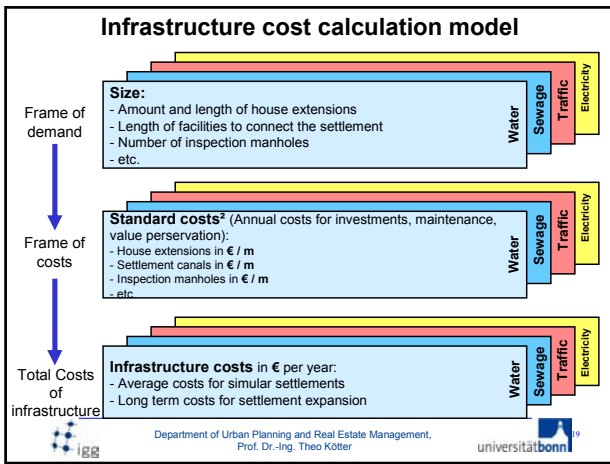
## Cost sharing as a part of strategical area management



Department of Urban Planning and Real Estate Management,  
Prof. Dr.-Ing. Theo Kötter







### Urban calculation of integrated projects (SKIP)

public infrastructure provision

Department of Urban Planning and Real Estate Management, Prof. Dr.-Ing. Theo Kötter, universität bonn

### The necessity of urban calculation

**decision process:** calculation provides information for the weighing of concerns

**optimisation:** especially transparency of costs and efficiency improvement of draft plans because of the demand for cost and area saving infrastructure provision and construction

**controlling:** controlling of urban projects during the process of realisation with regard to the budgets of time, costs (and quality)

Department of Urban Planning and Real Estate Management, Prof. Dr.-Ing. Theo Kötter, universität bonn