PLUREL

Land use relationships in rural-urban regions

Module No. 2

PERI-URBAN LAND USE RELATIONSHIPS – STRATEGIES AND SUSTAINABILITY ASSESSMENT TOOLS FOR URBAN-RURAL LINKAGES, INTEGRATED PROJECT, CONTRACT NO. 036921

D 2.4.1

Urban growth management

- Effectiveness of instruments and policies

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SIXTH FRAMEWORK PROGRAMME

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Contents

Abstract

Objectives/aims

This deliverable report is part of PLURELs Workpackage 2.4: Spatial development strategies and scenarios, where a review of policy options and their effectiveness is included. Our purpose of this paper is to look into different policies, strategies, measures and instruments that aim at managing urban growth and curb urban sprawl in a wider sense.

Methodology

The main methodology of the paper is a desk-research based review of policy options supplemented with field study and interviews in selected cased study regions. This paper consists of two parts. The first part is based on literature, while the second part collects examples of policies, spatial strategies and plans across the PLUREL cases, and supplemented with Portland, Oregon and Seattle, Washington as the most advanced American growth management cases, as well the Copenhagen area.

Results / findings / conclusion

Although there are contradictions in the evidence presented in the literature, we believe that it may be safely said that urban growth management policies have an influence on urban growth under certain preconditions including: sufficient time for implementation and continuity of efforts; choice of appropriate policy measures; clarity of visions and goals; coordination with other policies including economic incentives; rural policies providing incentives to maintain agricultural activities; political commitment and acceptance; support/framing from higher level policies; and finally economic incentives and de-incentives.

The evidence from the case studies generally confirm the role of national planning levels as well as the need for clear visions and strategies, and policy integration. Additional topics highlighted in the case studies include the existence and mandate of regional bodies, the role of European rural policies, and finally urban attractivity policies. Effective regional bodies are needed to deal with urban expansion and peri-urbanisation at a relevant scale; European rural and agricultural policies makes up the main 'policy complex' targeting the non-urban area including its land uses; while lastly leverage of urban attractions, competitiveness, and quality of life are pursued by all with a likely impact on land use and land use change patterns. Such measures are likely to be an important component in a growth managing policy package but very difficult to assess for their effectiveness.

Popular science description of main results (max 300 words).

Most cities and regions make efforts to plan and control urban growth in order to secure the provision of public services at a low cost and to protect nature and the environment. The study focuses on the discipline of 'urban growth management' to study the variety of approaches and what is know about the effectiveness of these approaches.

Classification of results/outputs:
For the purpose of integrating the results of this deliverable into the PLUREL Explorer dissemination platform as fact sheets and associated documentation please classify the results in relation to spatial scale; DPSIR framework; land use issues; output indicators and knowledge type.

Spatial scale for results: Regional, national, European	The spatial scale is mainly regional although some results relate to the national level.
DPSIR framework: Driver, Pressure, State, Impact, Response	The deliverable deals with the responses that are available to control urban growth. In the context it is to be noted that public policy has the role of response as well as driver towards certain outcomes.
Land use issues covered: Housing, Traffic, Agriculture, Natural area, Water, Tourism/recreation	The main land use issue is housing and its conflicts with agriculture and nature areas.
Scenario sensitivity: Are the products/outputs sensitive to Module 1 scenarios?	No
Output indicators: Socio-economic & environmental external constraints; Land Use structure; RUR Metabolism; ECO-system integrity; Ecosystem Services; Socio-economic assessment Criteria; Decisions	Resulting land use structure is the main focus but no results are modelled or calculated.
Knowledge type: Narrative storylines; Response functions; GIS-based maps; Tables or charts; Handbooks	Input for storylines as well as handbook (condensation of theoretical and case study based knowledge)

How many fact sheets will be derived from this deliverable:	**8 (in collaboration with WP 2.4.2 and module 3)**

Introduction

PLUREL WP2.4

This deliverable report is part of PLURELs Workpackage 2.4: Spatial development strategies and scenarios. The objectives of the WP is to consider planning policy options and to describe and model spatially explicit scenarios at case study level, depicting future spatial land use relationship development patterns. This deliverable reports reviews the policy options that has been described in the international literature and includes evidence from case studies as an input to the scenario development process. WP2.4 cooperates mainly with the case study workpackages WP3.3 and 3.4 and stakeholders for the specifications of regional scenarios which are the modelled with the MOLAND land use model by Joint Research centre in WP2.4.

Background and objectives of the deliverable

When urban impact on peri-urban landscapes is discussed, it is necessary also to discuss the way urban areas develop or grow in spatial terms. We can draft two extremes: a spatially contained growth mainly by densification within already developed land or on the contrary a dispersed urban growth into the countryside. Although regeneration and densification is going on in most European cities, cities also grow in dispersed ways into the countryside. The increase in developed land has been higher than the population increase in most parts of Europe, leading to decreasing densities and increasing consumption of peri-urban and rural land (EEA2006).

The general and popular term used for this development, “urban sprawl”, is not very precise and has moreover developed its content over the last half century. It includes a dispersed urban growth at the edges of existing cities; a considerable intake of new developed land for urban purposes; low densities and auto-dependency; discontinuous, patchy and leap-frog development; single use developments with housing based on single family houses; diffuse retail uses; and all this happening in an un-coordinated way, driven by market forces (e.g. Batty et al. 2002, Soule 2006-1, EEA 2006).

In general planners, urbanists, architects and landscape experts tend to see such very dispersed and discontinuous urban development as something to avoid, because it leads to a number of undesirable conditions:

- Loss of agricultural land and natural resources,
- degradation of landscapes,
- high capital facility costs (inefficient infrastructure investments),
- poor urban environments,
- social segregation,
- long and time-consuming travelling distances,
- automobile dependence, and resulting excessive use of fossil energy and climate change threats.

(Soule 2006-1, EEA2006, Nelson & Duncan 1995, Batty et al. 2002, Carruthers 2002).

On the other hand strong forces seem to favour a dispersed urban development:

- Car ownership and increasing individual mobility,
- life style preferences favouring single family housing in semi-rural communities,
- preferences for racially and socially segregated housing areas ("flight from blight"),
- possibilities to obtain better local living environments,
- public investment policies,
- land speculation,
- fiscal incentives for peri-urban communities to develop land.

(Filion et al 1999, Soule 2006-1 and 2006-2, Wassmer 2006, Nelson & Duncan 1995, EEA 2006).

In this light urban sprawl may be described as "the tragedy of the commons": what benefits single individual declines the quality of the common good, and thus also in the long term the quality of life for each individual (Hardin 1968, Wickersham; 2006). Economists use a market failure terminology (failure to internalise public costs) to understand why urban sprawl happens and is accepted (Brueckner 2000). This fact points to the possibility of public intervention for wilful planning and co-ordinating of urban growth.

In Europe there is a long tradition for managing the spatial patterns of urban growth via urban planning at regional and local level. However, as city regions grow and become more complex, traditional planning seem to become a less adequate means to curb sprawl, and restrictive spatial planning is generally under pressure from liberalisation and new governance structures.

In the United States planning traditions at city-regional scale seem to have been considerably weaker. However, in later years the discussion has been taken up both academically and practically. The terminology of that discourse is not "planning", but rather "growth management" or "Smart Growth" (Nelson & Duncan 1995, Nelson 1999, Kline 2000, Wassmer 2006, Willmer 2006, Smart Growth Network 2003 and 2006). There is also a discussion about the role of spatial regulation of growth in relation to economical incentives (e.g. Brueckner 2000, Turnbull 2004,). Although Europe may be ahead of the United States regarding the spatial management of urban growth, there may be important lessons learned from recent American discussions and experiences, because seen from a European standpoint they view the problem afresh.

Our purpose of this paper is to look into different policies, strategies, measures and instruments that aim at managing urban growth and curb urban sprawl in a wider sense. Batty et al. (2002) reviewed measures aiming to tackle urban sprawl. They mention a number of policies, strategies and planning instruments, of which only few are evaluated for their actual power of curbing dispersed urban growth.

Our focus here is strictly on the efficiency of such instruments, based either on empirical evidence or on modelling studies. Three parts will focus on spatial regulations or containment policies, on transport planning and economic incentives and investments, and lastly on the impact of the government structures in which instruments are embedded. Although literature on urban growth management and urban planning is plentiful, studies that actually measure efficiency of planning instruments are much scarcer, probably because such measurement is quite complicated.

Structure of the deliverable

This paper consists of two parts. The first part is based on literature, while the second part collects examples of policies, spatial strategies and plans across the PLUREL cases, and supplemented with Portland, Oregon and Seattle, Washington as the most advanced American growth management cases, together with Copenhagen, which the authors know well.

The paper was written by Gertrud Jørgensen and Thomas Sick Nielsen. To the first part contributed also Jeppe Mikel Jensen and to the second part contributed Julien Grunfelder. We want to thank Professor Hilda Blanco who has reviewed the first part of the paper, but is not responsible for its contents.

PART I: Literature review

Containment policies

Management and steering of urban development and growth may take several forms. In this section we deal with policies aiming at containment. As containment we have defined such policy measures, instruments and plans, which aim at restricting urban growth through land use regulations that hinder or forbid urbanisation in certain parts of the urban fringe or the peri-urban areas, thus directing development into certain appointed areas. Such measures will often be found in the form of urban growth boundaries, various forms of zoning, green belt protection, or the like. These strategies are thus connected very strongly to protection of land from urban development rather than attracting urban growth to the more densely built up areas.

Containment strategies in regional metropolitan planning is not unusual in Europe – on the contrary many cities have strong regional spatial policies which include containment: The green belt planning for London, The Copenhagen Fingerplan (especially the latest version from 2007), the Green Heart strategy of The Randstadt, Netherlands, the Frankfurt green belt to name but a few. The instruments and the planning levels have been widely different.

Although this seems to be a very simple and easy measurable way to control the spatial delineation of urban development, experience shows that is does not always work precisely as planned. Urban or semi-urban development may occur based either on planning dispensations or by ex-urban developments, deriving from changes in rural and agricultural land uses. This means that not only urban planning, but also the regulation of agricultural land uses is important for peri-urbanisation.

Experiences from the USA

In the United States, low-density urban growth based on individual automobile transportation has been even more common than in Europe, not only favoured by housing preferences and abundance of land but also by a culture of individualism, a strong focus on property rights and therefore also a less willing agreement on the need for land use regulation (Knaap et al 2007; Porter 1997).

Relatively few states and urban areas have implemented growth management programs or plans, planning systems are different, and were implemented late, only since the 1970s, and several much later (Nelson 1999, Weitz 1999, Carruthers 2002, Nelson & Dawkins 2004, Wassmer 2006).

As spatial planning policies are a state-level or even local matter in the US, strategies, policies, and instruments differ markedly among metropolitan areas. Some states and some cities have employed relatively strong measures, whereas others have let market forces rule. The instruments used for implementation of containment strategies have been different as well. However, this fact together with the existence of common statistical data has lead to a number of nation-wide comparative studies of the efficiency of different containment measures and instruments, which will be reviewed below.

The USA seems in many ways to be different from Europe as to the character, strength and quality of planning instruments, but there may be interesting lessons to learn from a country with less firm planning traditions, a lively discussion of the aims and usefulness of planning, and innovative ways of thinking growth management measures.

Over the latest 20 years, a number of American papers have evaluated the effectiveness of urban growth management measures. These studies mainly use quantitative methods applied on US metropolitan regions, and are concerned with the statistical co-variation between an input variable (policy measure) and an output variable (spatial change or its consequences). The definition and typology of containment strategies and instruments as well as of spatial development vary among the studies. The lack of specificity and qualitative evaluation makes it difficult to appraise the validity of the causality suggested by some of the statistic studies. More specific case studies may be found: a growth management "classic" such as Portland, Oregon has been described in more detail by Nelson & Moore 1993 and Gibson & Abbot 2002. Still qualitative policy-studies are scarce, although they might lead to a more thorough understanding of the connection between policy and actual spatial development.

Types of policy measures

Literature and practise can produce a considerable number of varied policy measures used in western countries to curb dispersion of urban development. Compact city strategies, decentralised concentration strategies, and preservation of open space and rural areas are mentioned as overall strategies, while instruments encompass a great variety ranging from restrictive measures such as urban growth boundaries and greenbelts, parking restrictions and development fees, to measures which aim to make denser cities more attractive, such as revitalisation policies and public transport provision. Various zoning techniques requiring certain maximum or minimum densities, mixed use etc are often used as technical means to carry policies through (Nelson 1995, Porter 1997, Batty 2002,).

When reviewing measures to combat urban sprawl it is important to consider the aims of policies (do they do what was intended), the choice between conflicting objectives, how different policies influence each other, and whether the levels of approach is right for the problem (Batty et al. 2003).

Urban growth boundaries, and land use regulations are more or less traditional ways for the public to control the future use of a certain area of land. While such measures in some locations seem to have a high acceptance among the public there is also discussions among researchers as to whether they are effective at all – because any land use regulation is only as strong as the public body that enforces it. The smart growth approach, focusing more on urban design and a stronger use of (economic) incentives and disincentives, is developed over the later years in the US and paralleled to some extent by the urban renaissance in Europe.

State, regional, and local planning

Planning normally takes place at two or three levels: the local level within a jurisdiction (municipality, city), the state or national level, often laying out general policies, and in some cases also at a regional level, where plans of local jurisdictions within a city region will be co-ordinated.
In the USA only few states have urban containment policies at state level (ranging from 5-9 states out of 51 depending on the definitions) and also only around one fourth of the major city regions are covered by an urban containment plan (Nelson 1999, Wassmer 2006).

States with growth management try to ensure reasonably high densities, via not allowing / laying out more land for urban uses than is necessary under a suitable time horizon. Laissez faire states, on the contrary, provide enough building land, provide the necessary infrastructure and in general just let urban development happen. Those are often states with

little growth pressure and/or a political tradition that is against a too strict policy guidance of the citizens (Nelson 1999).

Three waves of development have been defined for state planning in the USA:
The first wave in which few states launched land use statutes, the second wave in which "growth management" was introduced demanding vertical consistency, concurrency and compact development, and the third wave which set focus on better guidance and assistance for local planning, horizontal co-ordination, linking transportation and land use planning, and promoting sustainable communities (Weitz, 1999).
From the late 1980s and early 1990s, there has been an increasing recognition that growth management needs to also incorporate measures that aim at directly shaping the character of development – density and urban design – e.g. the New Urbanism and Smart Growth movements (Katz 1993, Duany et al. 2001, Smart growth 2006).

Although – as will be seen later – there is little agreement on precise effects of statewide planning, there is agreement that state policies are important, and even seem to influence planning quality at lower levels in a positive way (Knaap, Berke and French 1994). But since the early 1980s, there has been a growing agreement that local growth management programs without a state-wide framework has negative consequences, such as regional traffic congestion, increased housing affordability problems, income segregation, etc. (Dowall 1984) and therefore that growth management need to be practised at regional or state level.

Strong or weak planning – accommodating or restricting growth?

Based on an analysis of 127 city plans, Nelson & Dawkins (2005) has developed a framework of weak versus strong planning on one side, and restricting or accommodating growth on the other, leading to four categories of planning frameworks:

Weak-restrictive: there are no goals to accommodate future urban growth, only to restrict it. Restrictions will often be infrastructure (service-provision) based, and the co-ordination with neighbouring jurisdictions is weak.

Strong-restrictive: there are no goals to accommodate future urban growth, but emphasis on keeping open space and slowing down development, and include a moderate co-ordination with neighbouring jurisdictions.

Weak-accommodating: Development needs are identified as basis for the urban containment plan. There is an emphasis on land supply, and infrastructure i/service provision, thus the plan mostly serves to accommodate growth in an orderly way. Few policies to support a containment strategy.

Strong-accommodating: Development needs are identified as basis for the urban containment plan, but also emphasis on ensuring rural/open space beyond the urban growth boundary. Combined with sector policies for housing, land supply, infrastructure) and strong co-ordination between jurisdictions.

Nelson and Sanchez (2005) develop this distinction further with examples of weak instruments. Weak containment includes restricting urban infrastructure (mainly water and sewage) to areas where urban growth is wanted – urban service areas. Another measure mentioned under this label is the attempt to restrict density outside the designated urban growth area by requiring minimum lot sizes, e.g. a minimum of 1 to 5 acres (0,4 - 2 ha) per lot in order to hinder dense urban or suburban development that requires service infrastructure.

Nelson & Sanchez conclude that these weak measures seem not only ineffective, but also counterproductive: They promote exurban sprawl, which "consumes land at a very high pace"; they signal to farmers that profits can be made from development; they hinder effective provision of services; and they place the land in a situation of neither urban nor rural status.

Non-planning incentives

Some authors stress the possibility of using (economic) incentives and disincentives instead of planning measures, either as a supplement to planning based land use restrictions or as an alternative. The argument is that planning is not always efficient and economic incentives that correct market failures will be more efficient. Economic incentives comprise several instruments: Development impact fees that internalise infrastructure costs via a fee on new development corresponding to the infrastructure services cost, transfer of development rights (TDR) from some areas to others in a sort of quota organisation, and tax reductions in areas that meet certain requirements (density, nearness to public transport) and direct support for denser and socially mixed neighbourhoods as well as for infill and revitalisation (Batty et. al. 2002, Brueckner 2000, Turnbull 2004, Bae 2007). There seem to be evidence that development impact fees restrict not only sprawl (Turnbull 2004), but maybe also residential development in general, which is not a goal in itself (Skidmore & Peddle 1998). Some experience has been made with transfer of development rights (TDR). Succes in terms of halting sprawl seems uncertain, but otherwise program success is depending on the economical infrastructure (banking etc) and the co-operation of local agents (Pizor 1986 and Kaplowitz et al. 2008)

Some form of public facilities programming and financing seem to be an essential part of growth management programs, which must link three major measures: a) land use plans and regulations, including containment policies; b) environmental regulations and open space acquisition programs; and c) public facilities programming and financing.

Nature- and agriculture protection instruments

Some measures of urban growth containment efforts were developed to protect agricultural land or natural assets. The purpose may not be fixed to prevent urban development, but may have a significant role, especially for preventing ex-urban development or "rural sprawl". In peri-urban areas with a high pressure for establishing new residential developments or development of small scale hobby-farming or low-density "ranchettes" in the countryside, combined with a vulnerable landscape, such programmes seem to have some potential for hindering or steering ex-urban development in peri-urban areas (Johnson & Maxwell 2001). The motivation behind the early wave of state growth management programs, Hawaii, Vermont, and Oregon was to conserve natural resources in the face of rapid urbanization. Oregon's system, for example, aimed to protect farmland and forested land.

The importance of combining urban policies with policies focused on rural development to make farming a viable and competitive land use is mentioned also, with instruments such as lower taxes on productive agricultural use or within agricultural areas, right-to-farm laws, rural development programmes, exclusive farm-use zoning or even systems of transfer of development rights from rural to urban land (TDR see above). This may be most important in relation to exurban development or "rural sprawl" with very low-density housing and hobby farming near urban areas (Nelson 1995).

Indicators of spatial urban development and policy efficiency

In order to measure the efficiency of various growth management policies, it is necessary to define indicators of the effects. This may seem simple as stated by Bae (2007):

"UC [urban containment] strategies are an attempt to influence densities at different distances from the urban core, and their success should be measured by how well they achieve this".

This is less simple, however, than it sounds, because there are many aspects to be accounted for, especially when comparing different cities and states:

- What is the purpose of the policy - to protect rural land or to ensure a higher density within the city?
- How has population- and economic growth influenced the pressure on land?
- How is urban and rural land defined and measured?
- What level is appropriate for the indicator?
- Where does development take place?
- And how does urban growth influence the measurement of urban densities in a "before and after" setting.

Three basic groups of indicators of urban development as an effect of land use policies can be identified:

- Spatial indicators: urban densities and land use
- Economic indicators (infrastructure costs, taxation, property values)
- Indicators of the performance of the urban area (transportation, energy consumption, service etc)

Most of the indicators can be measured at the state or local level. There seem to be both pro's and con's of the state level measure (which could be applied to Europe as well). State level measure gives a broad and general picture, which can be related to state level policies. It does not, however, take into account the effectiveness of the local implementation of statewide policies or local planning measures, which might influence the general picture. Neither is it practical for measuring the efficiency of local policies, strategies or regulations.

Spatial indicators: Urban densities and land use

One (common) way to measure policy efficiency is land used for urban purposes related to the number of persons or households in the urban area: the urban density. Urban density is an obvious indicator for the efficiency of urban containment, and used by several authors (Nelson 1999, Batty et al. 2002, Nelson & Sanchez 2005, Wasmer 2006, Bae 2007). Obviously urban density is an indicator for the efficiency of the use of urban land, and thus also an obvious success criterion for containment policies.

However this indicator also poses some problems, which may jeopardise its validity: Nelson (1999) uses urban densities based on census data – in general and at state level - as an indicator to compare states with and without growth management. Kline (2000) points to the problem that the census criterion for urbanised land is in itself defined using population density, and thus gives too many uncertainties as to the spatial limitation of urban land. Growth in population densities in urban land imply "more efficient land use", but it is not clear if and how the land used for measuring has changed in the same period. This definition may also – says Kline – leave out new low density developments, which will

simply not be shown as ”urban ” in the census data, as well as development taking place in towns urban centres of under 50.000 inhabitants., and proposes “amount of developed land (based on a land monitoring system) per new inhabitant” as a more true and fair indicator of policy efficiency.

Nelson & Sanchez (2005) address this criticism to some extent. In addition to general urban densities, the change in amount of land with specifically low urban densities, (exurban land used for very low-density sub-urban development) is used as an indicator for urban sprawl. This indicator focuses on the change of land most associated with urban sprawl, but does not take into account the growth (or decline) of urban land in general and the general growth pressure on the cities. A downward change in exurban land is counted as a specific indicator of the success of containment strategies. Again, however, in this study the amount of exurban land is counted only in itself, and neither in relation to the amount of urban land or the total amount of land in the metropolitan region. This makes it unclear whether changes in ex-urban land occur by way of densification of exurban land into urban, by way of decrease in densities in land which is already urban thus changing it into ex-urban, or by way of change from rural land into exurban land – three alternatives, which bear very different significance to urban sprawl.

The dynamics and change of population and amount of land between various sections of the cities (urban, suburban, ex-urban) may be a very powerful indicator of how urban containment works (Bae 2007, Baaty et al. 2002), but it requires detailed information.

A simple spatial indicator for the success of growth management is the development in the amount of urbanised, developed and built up land (e.g. EEA 2006). The development in urbanised land as such is an adequate indicator for the threat towards landscapes posed by urban development. However, it does not reflect the characteristics of the urban development process: does it reflect a planned and relatively dense but strong urban growth, or does it reflect a dispersed but not so strong growth?

Alternatively the growth in urbanised, developed land per capita population growth is a more adequate indicator of the dispersal of urban growth and thus of the success of urban containment. The reverse indicator – loss of rural land – is also used by some authors, stressing the effects of urban sprawl on peri-urban nature and farmland (Nelson 1995, Kline 2000, EEA2006, Batty 2002, Carruthers 2002, Wasmer 2006 a.o.).

Urban performance and Economic indicators

The performance of cities may be seen as a secondary indicator, based on the hypothesis that denser and non-sprawling urban areas are often believed to perform better.

Indicators would be: Vehicle (automobile) mile travelled per household (the lower the better), public transit accessibility, total energy consumption: measured as total consumption per capita state-wide, better social equity and better economic performance of the cities.

In relation to economic performance a more efficient infrastructure and service provision leading also to lower public expenses and taxes is the most often mentioned result. Secondly is mentioned increasing property values based on the hypothesis that land scarcity and higher densities leads to higher land prices (Phillips & Eban 2000, Dawkins & Nelson 2002). But the public facilities’ expenses would also depend on the conditions of the facilities before the containment strategies were imposed.

Burchell et al. (2005) looks into the costs of sprawl covering a variety of issues from land use over infrastructure costs to transport congestion, concluding that a compact growth

scenario would lower investment demand with around 7% and would lead to a 10% lesser tax deficit.

Urban containment in principle restricts the amount of land for development, and it has therefore been discussed whether such policies lead to a shortage of housing opportunities and excessively high property values. The answer is not clear. Urban growth boundaries are probably not responsible for an affordability crisis, reports Phillips & Eban (2000), while Dawkins & Nelson (2002) concludes that urban containment does increase land prises – this is an effect of increased densities, and actually it shows the effectiveness of the policy. However, to avoid affordability crisis, it is necessary that high densities are allowed inside the boundary – or that the containment strategy is accommodating growth, not only restricting it. But also it may call for government subsidies for affordable housing.

On the other hand Nelson & Duncan (1995) states that lack of growth management leads to overbuilding and overinvestment in buildings, and therefore to large public costs for bailout: these are four times as big in states without growth management per new resident.

Efficiency of urban containment policies

Although urban containment in various forms is taking place all over the world, clear empirical evidence of its successes has proved to be scarce. However, some empirically based quantitative studies have been carried out and will be reported here.

Does urban containment influence land use and density?

In a study of 452 urban areas Wasmer (2006) first identified natural drivers of urban growth. Not surprisingly demographic and economic development is found to be the primary driver of increase in urban land. Crime and ethnic segregation seem to increase urban sprawl, administrative fragmentation is also correlated with urban sprawl. Development depends finally on regional variation in natural resources such as ground water (sufficient water resources increase urban sprawl), or topographic characteristics (water, mountains, forest, desert) that may hamper or increase urban sprawl.

Carruthers (2002) examined 283 metropolitan counties in 10 states with rapid urban and population growth and also found that population is a primary driver for urban land development, that higher densities lead to less urbanised land with higher property values, in its turn leading to a smaller population growth. Urban containment comes on top of these "natural" drivers, and its impacts were derived after controlling for the effects of other drivers.

State wide growth management programmes decrease the growth in urban developed land, and the number of years a state wide containment policy has been in force decreases the urban growth considerably. Strong state level steering is most efficient, and a restrictive version is even more efficient(Carruthers 2002).

Nelson (1999) compared states with and without growth management programmes to evaluate the efficiency of containment policies. He concluded that such policies slow urban expansion and loss of farmland, slow down the increase in vehicle miles travelled and energy consumption, and lessen the burden on the tax-payers. The results were questioned by Kline (2000) who made similar studies of all the United States, finding that although the cases used by Nelson are among the best and worst states regarding urban sprawl, other states have performed just as good (or bad) regardless of containment policies. In general, however, Nelson 1999 concluded that growth management strategies work and should be given emphasis and support from federal government, and Kline (2000), despite his reservations, agreed that growth management in general tends to decrease sprawl.

Nelson & Sanchez (2005) studied data from 35 cities in the US in 1990 and 2000 to throw light on the effect of urban containment on exurban (very low density) development. The paper concludes that strong containment strategies seem to promote higher urban densities and small increase in exurban land, while weak containment strategies may have effects reverse to the intent, especially those regulating minimum densities via plot sizes, because plot sizes are still small enough to be attractive for urban housing purposes (supported by Nelson and Duncan 1995). Natural, topographic hindrances for urban growth seem to encourage leap-frog development and thus increase exurban development.

Rodriguez et al (2006) studied 25 larges metropolitan areas of the USA, including 1168 jurisdictions, of which 83% answered to a survey, in which they were asked what planning policies existed in the jurisdiction in 1982, 1988 and 1994. This was related to urban density. They found that urban containment policies (UPC's) increase densities, and does so more the longer the UCP has existed. Support from a state containment policy would also increase the density. Surprisingly they also find that existence of UCP's slightly increase the amount of vehicle miles travelled per capita, possibly because urban containment in single jurisdiction without horizontal integration may encourage leap-frog developments, exurban development, and sprawl outside the jurisdictions in general.

Carruthers (2002) examines the influence of five state level growth management policies on five outcome factors: population change, urban density, urbanised land area, property values and public spenditure for infrastructure. The effects varied strongly among the states from lower densities and higher property values, an increase in urban area, lower densities and higher property values, higher densities and lower property values – to no significant effect at all. Carruthers makes a qualitative effort to explain the apparent lack of impact, and points primarily to political fragmentation and lack of horizontal co-ordination as causes.

Bae (2007), on the other hand refers to earlier studies showing that urban growth in some places do take place outside the urban growth boundary - sometimes even faster than inside – and that there may be a strong "spill over effect" to neighbouring jurisdictions because the functional urban region grows to be larger than the planned city region.

Johnson & Maxwell (2001) made a scenario study of the role of the Conservation Reserve Program in controlling "rural residential development" – or rural sprawl. It was based on a case study in southern Montana, which is under strong pressure from exurban development from hobby-farming and other very low-density residential development. Results were based on a land use change scenario model, calibrated with data input from 1965 to 1998, and the landscape protection scheme was found to have a considerable effect on rural residential uses, reducing residential land from 40% to 23 % in a 2025 scenario.

Policy efficiency

In a study of possible future effects of growth management policies in Israel, Frenkel (2004) forecasts a considerable effect, but only, as he states; "if this policy proves to be effective". And that is exactly the problem. Policies do not always work, or they work differently from what was expected. In the studies reported here, which are mainly quantitative, statistics based studies, there is little evidence as to why policies work or do not work. This requires more detailed policy studies, but some explanations are still offered:

- It takes time before new policies become efficient
- The political mandate must be strong enough to carry through the policies
- Lack of regional authorities and/or horizontal co-ordination – political fragmentation and inconsistent regulatory landscapes undermine the basis for growth management policies
- Lack of coordination with other policies, especially infrastructure investments and housing policies
- The urban growth area must be sufficient for accommodating future projected growth
- It must be possible to obtain a public acceptance of the policy

Some of these preconditions are discussed later in the section on government and efficiency of land use policies.

Transportation and economic incentives

Transport infrastructure and transport costs as driver of sprawl

Numerous authors points to developments in transportation and mobility as a key driver of urban de-concentration, sprawl and peri-urban changes (Russwurm, 1975; Mieszkowski, Mills, 1993; Bruckner, 2000; Batty et.al. 2003); together with general changes in the housing sector (smaller households), population growth etc.

The important role of transportation and mobility as determinant of the extent of an urban area is also reflected in Alonso's (1964) monocentric model. In the monocentric model the private citizen seeks to maximize satisfaction from a fixed family budget. Expenditures are commuting, land and 'other'. As transport and land are interchangeable; and all jobs assumed to be located in the centre; bid-rent curves for land, as a function of distance to the centre, can be calculated for all. Under the assumptions of the model the cost of transport will generally determine the size of an urban area, and create lower density development as distance to the centre increases.

Following Anas et. al. (1998) the monocentric model is generally confirmed in empirical studies so far as densities decline with distance. Additionally cities have decentralized over time and the density gradient declined. However, attempts to explain differences in gradients across cities, and across times, have not been very successful at isolating transport costs as an explanatory factor. One of the reasons for this may be that transport costs is not reducible to vehicle operating costs, but rather a composite of operating costs and time costs and that the overall cost of transport is dependent on the level of wealth and the corresponding value of time. Glaeser et. al. (2001) highlights the high time-costs of personal travel in wealthy societies as an important factor in activity locations and thus spatial development patterns.

An effect of the costs of operating vehicles upon urban land use patterns has been found in comparisons of cities across the world. Bertaud and Malpezzi (2003) found in a sample of 48 cities in 20 countries that the density gradient flattens with falling transportation costs, i.e. urban areas become larger and less dense as transport becomes cheaper. Angel et. al. (2005) found in a sample of 90 large cities that the size of the urban area increased over time with falling transport costs and/or increasing car-ownership.

The effect of car-ownership upon urban extent found by Angel et. al. (2005); and for Europe by anaylzing urban expansion in NUTSX regions by Nielsen (2007); can be interpreted as a mobility effect or an effect of increasing travel speed. The private car will in most circumstances allow faster travel than any other surface mode; and thus; in a wealthy society, where vehicle operating costs in real terms are low, lower the transportation (time) costs.

When transportation costs are mainly time costs the role of transportation modes and infrastructure resembles the description of the constrained nature of activity patterns in time and space, as given in a time-geography framework (Hägerstrand, 1970). When activity systems from the beginning are constrained by fixed locations and appointments in time and space (e.g. home, work, working hours) the available travel speed (infrastructure + modes) determines how much activities can be spread out in space and thus indirectly how much an urban area can sprawl.

Thus there is a wide consensus that transport speeds and overall costs is a key factor when it comes to dispersal and growth of urban areas – at least from a historical perspective, where urban extent and form is often presented as equivalent to the most used modes of travel at the time (see Anas et.al. 1998).

However, practically none of the studies of containment and approaches to containment and control of urban sprawl, reviewed for this report, makes use of transportation strategies as a tool or policy option to reduce sprawl, although there is much advocacy of Transit-Oriented-Development as a tool in shaping development in urban areas. To some extent this is due to the fact that fixed rail require federal and state capital financing, as well as subsidies for operating these systems, and such financing has not increased significantly over time. Local governments often cannot afford to finance such systems with their own resources. And, in the US, where most of the federal and state transportation investment goes into highway expansion and improvements, this type of investment is primarily undertaken to relieve congestion, rather than shape development at a regional scale.

Another likely explanation for this is that transportation has an indirect effect on urban expansion and sprawl - while more direct measures are also available for guiding development. Additionally the effect of the development of transportation systems may be small compared to other drivers such as population and changes to the household structure. Especially in a situation with a well developed infrastructure and high overall levels of mobility - added infrastructure will only change conditions, including the conditions for urban expansion, marginally. This point is also reflected in analysis of the significance of infrastructure projects for economic development (e.g. ESPON 2.1.1). The effects of transportation infrastructure depend upon the starting point with respect to connectivity and infrastructure provision. This is not to say that containment and growth management strategies can readily exclude transportation aspects. Given the diverse set of drivers 'producing' urban expansion and peri-urbanization this is likely to counterproductive.

Empirical studies, presented in the next sections, indicate that transportation infrastructure in most instances has an effect on location patterns.

Effects of road building

Multiple empirical studies link road infrastructure to a dispersal of activities, location patterns, and sprawling land uses. Many of these studies are from the US, where evaluation of effects was part of the National Defense Highway Act of 1956. Almost all, American as well as European studies, focus on the effects of higher order, limited access infrastructure, such as motorways.

Bone and Wohls (1959) study of the Massachusetts route 128; and the Bureau of Population and Economic Research´s (1968) study of beltway effects in Virginia are early examples. Generally evidence pointed to changing location patterns in favour of locations serviced by the new infrastructure elements. The beltway study is particularly interesting in the context of containment policy in that it concluded that the beltway had caused a massive reorientation from outward corridor development to interstitial development and thus relative containment. This highlights that conclusion with respect to the role of infrastructure is sensitive to the form/type of infrastructure project as well as the regional context when it comes to mobility level and development pressures. Infrastructure may also guide spatial development and provide for relative containment of land use changes.

Later studies from the US have documented how cluster and corridor development within Metropolitan areas have been affected by the characteristics of the transportation system and especially the configuration of the freeway network (Baerwald, 1982). New business complexes: a Suburban Freeway Corridor has been established along freeways encircling

large metropolises (Baerwald 1978). These complexes are "linear" and car dependent in nature – and thus a sprawling form of urban development.

As car- and 'freeway-dependency' has increased over time the accessibility to highways seem to become a general factor affecting the likelihood of a given parcel of land being developed as urban (Sanchez et. al. 1999). Access to existing population concentrations, the latent demand in a given area remain important, and reduces the urbanization/business development pressure on 'non-urban' motorway interchanges compared to more urban ones (Moon, 1988).

For Europe, analysis by the EEA and the European Commissions Joint Research Centre (European Environment Agency 2006) points towards sprawling, largely linear, urban development in infrastructure corridors. Other studies have focused on the more local changes: shifts in the location of business floor space in favour of locations adjacent to the motorway network in Denmark (Hovgesen and Nielsen, 2005); changing form and function of urban space along the new Athens freeway (Zifou and Serraos 2005); changes to shop-location patterns following ring-roads (Van Nes, 2002). Van Nes (2002) concluded that changes to the location pattern following opening of ring roads, depends upon the level of change introduced including the degree to which the old street pattern is broken in the new network.

The empirical studies generally supports that there is a relationship between road infrastructure – and especially higher order road infrastructure – and urban development/land use change. This relationship is conditioned by the latent demand and a plausible interpretation is that the effects of infrastructure on urban development mainly correspond to the effect of infrastructure on accessibility levels. This is framed by Klaasen and Jacobs (1999) in their concept of "accessibility value" which is suggested as a tool for assessment of the conditional effects of infrastructure plans upon location patterns/incentives. The "conditional affect" is worth keeping in mind: there is no necessary effect of infrastructure or location value upon urban development.

Effects of public transport

Besides the broad historical perspectives upon the changes from pedestrian city to railway city, and from railway city to car-based urban form, the authors have no knowledge of empirical evaluations of effects of public transportation upon patterns of urban land use change and sprawl. Reasons for this may be that investments in public transportation often focus upon already built up areas where the effects of the added infrastructure are extremely hard to trace. Thus empirical evidence of the effects of public transportation infrastructure are limited to studies on land and property values, and some model-based studies linking public transportation strategies to wider aspects of urban sprawl.

Many studies have documented the effect of public transportation upon property values, for instance in the form of a value gradient where better access to public transportation is equal to higher land and property values (RICS, 2002). Within research into infrastructure effects changing property values are generally thought to be a more sensitive indicator of effects than actual land use change, and the value effects of public transport infrastructure indicate that the effects are principally the same as for road infrastructure. In the case of improvements to public transportation in already built up areas (e.g. construction of a subway line) the resulting increase in 'location value' should then allow for a change of functions along the line and possibly renewal of existing buildings.

One of the public transportation projects that have been in particularly well studied in resent years is the Jubilee Line Extension in London, linking East London and the Docklands to the centre. The overall result has been an increase to property values along the Jubilee Line, but also depending upon the distance to the centre of London (Thurstein-

Goodwin and Bannister, 2005). The effect of the Jubilee line exemplifies how higher order PT extensions can 'upgrade' central areas and to some extend make them more integrated with the Central Business District. In the context of urban sprawl and containment this may add to the competitiveness of central locations vis-à-vis more peripheral ones.

The model-based European studies that include the effect of PT strategies upon urban sustainable development as well as the spatial development taken alone (SCATTER project, Gayda et al. 2004; PROPOLIS project, Lautso et al. 2004) point to that the most likely effect of improved public transportation between city and suburbs/hinterland will have a negative impact on sustainability, i.e. it will induce more urban expansion and sprawl. However, when it comes to improvements to public transportation within the central part of the urban area, this is more likely to reduce sprawl and increase sustainability. Such improvements is likely to help the centre to compete with other locations by maintaining accessibility and an overall high level of service and to avoid the drawbacks of congestion caused by high population densities.

Effects of pricing

As indicated in the first section there is a wide recognition of the effects of costs of transportation upon urban development. Petrol is a general subject of taxation across the EU. Furthermore cordon pricing has been implemented in a number of cities across the world: London, Oslo, Singapore; and various forms of road pricing are under consideration as a means to achieve more sustainable transportation. Following the theory increasing fuel costs or road pricing will reduce the propensity to sprawl.

The effects of cordon pricing were evaluated in the SCATTER project (Gayda et.al. 2004) as well as in the PROPOLIS project (Lautso et.al. 2004). The general finding was that cordon pricing is likely to be an effective policy measure when it comes to reducing urban sprawl. Project pricing strategies may be as effective as direct regulations of land use (zoning etc.), but the distributive effects of pricing are problematic, as it may allow the more affluent to sprawl and not give the less affluent the choice of trading off travel time for cheaper housing on the city edge.

Transit oriented urban development strategies

Transit Oriented Urban Development (TOD) is another perspective on the relationship between transport infrastructure and urban development. TOD implies that the link between urban development; functions; and public transportation is designed at the project level or through targeted policies. In the US TODs are part of the "Smart Growth" agenda and are promoted in different ways, depending upon the city or state in question (zoning regulation of use, parking, and possibly 'density bonuses') (Cervero, 2007). Some European countries such as Denmark and the Netherlands exemplify a more general top down approach to TOD. In the Netherlands, the well known ABC-location principles have been applied to business location to make sure that the most intensive land uses, with the highest potential for PT patronage, are located in the areas most accessible by public transportation. The same principles have been applied to residential development, resulting in the so called VINEX locations (Bogaerts et. al. 2007). In the Danish case a general principle of proximity to train stations is applied to the location of intensive land uses in the capital area (Hartoft-Nielsen, 2007), and comparable principles of location or allowance are in effect at least in the central part of many large cities in Europe (e.g. London).

TOD strategies can be said to reduce sprawl while at the same time providing accessible locations for urban development. An important issue is how successful the strategy can be in achieving a Transit Oriented development pattern; be it based on incentives to intensive development in certain locations, or based on generic rules for the location of certain

activities in the region. The study of location patterns in Copenhagen by Hartoft-Nielsen (2007) has shown that even with a clear policy and associated measures it is still difficult to secure access from homes and jobs to public transportation main lines (time lags/old zoning designations; exemptions; and changing businesses probably where the main reasons). Other limitations stem from the need to based TOD developments on stable/fixed infrastructure elements and the large investments needed for expansions of fixed transit lines, as well as the large public subsidies often required to operate them.

Investment and taxation policies

Other area based investments and taxation strategies than transportation and transport infrastructure may influence urban development patterns. In the literature revitalization of the central area is often linked to containment, while taxation of development is seen as an effective means to reduce sprawl.

Investment in revitalization

Urban revitalization is often mentioned in the context of sprawl: sprawl may effect the 'survival' of the core; investments in the central areas may be required to accommodate population and businesses; and finally targeted investments may even reduce sprawl (see Artibise, 2005). A wide variety of instruments and incentive structures for redevelopment of run-down inner city or suburban areas exist, and over the last 30 years urban regeneration has become an increasingly important part of urban management. However, no empirical evaluations linking investments/revitalization approaches directly to sprawl or land consumption at a city wide scale are known to the authors.

Investments in the central area were investigated in the modelling approaches of the SCATTER project (Gayda et.al. 2004). Compared to other policy measures evaluated in the study an investment strategy seemed to have no or weak effect upon urban development and sustainability compared to other measures.

Generally, however, the likely effects and combined use of revitalization with other measures in a containment strategy for an urban area do not seem to be adequately analysed and described. It seems likely that the context and type of investments would be crucial for the outcome in terms of spatial development. The possible downside of investment in this context is that it will generate general economic growth and higher affluence and thus increase the general demand for more land/space per inhabitant. On the other hand investment in recirculation of brown-field land may be what is required to assure their recirculation and competitiveness with more remote green field sites. The specifics of such approaches are of course very difficult to model and possibly even more difficult to evaluate empirically for their regional effects.

Taxation

The 'negative' counterpart to investments in the core: taxation of new developments on the fringe, is generally judged to be effective in reducing urban sprawl. Such taxation was included in the policies being modeled in the PROPOLIS as well as in the SCATTER project. According to the models, the effects of putting a tax on all new developments is hard to distinguish from zoning and urban growth boundaries and is likely to be just as efficient as such more direct measures of control. Similar results have been found in the USA (Turnbull 2004). There are questions, however, as to the spatial precision of such (dis)incentives for sprawl. Also the problem of distributional effects (the affluent would be able to afford

higher taxes) so such a policy may not only reduce sprawl but also be likely to generate affluent suburbs and thus segregation by income.

Government and the efficiency of land use policies

When discussing the efficiency of land use policies, it is inevitable to include some discussion of the governmental structures under which the instruments are used. In this section we will briefly discuss the influence of government structures and their way of carrying through policies on the effectiveness of the same policies.

General tendencies in the institutions working with spatial planning

Effectiveness in planning institutions (how well they accomplish goals) can be measured in the processing time for policies to be implemented and the effects of the policy. The effects of similar instruments may vary according to the political and governmental context they are settled in. Factors that influence the effectiveness of a planning institution may be:

- Democratic legitimacy and power
- Professional expertise and ability
- The spatial level of power (national, regional, local)
- Potential for cross-sectoral administration communication and planning (interdisciplinarity)
- Potential for interinstitutional co-operation – network governance

(Bengtson et al 2004, Healey 2004, Nelson et al 1996)

Redistribution of power

Both in Europe and the rest of the world there are tendencies towards redistribution of power and decision-making in the traditional planning institutions. Although cities grow into still more complex functional urban regions, regional authorities seem to loose power to the local level. At the same time, planning change from public land use regulation in a bureaucratic and hierarchical system into a more strategic planning where still more public and private agents are involved in the planning process as described e.g. by Healy (1997, 2004, 2006).

This is in many respects an innovative and healthy approach to planning, but it also poses questions as to the visions and implementation of growth management strategies. Most results point to the fact that growth management and urban containment policies are most effective when national and regional policies support and guide the local policies (Knaap, Berke and French 1994, Dowall 1984). As there are many and differing interests involved in the management of urban development, also when the question of new urban developments is concerned, this poses interesting problems of how to make decisions and manage urban development, especially in relation to urban sprawl. Environmentalists and traditional urban planners seem to favour a strong regulation and protection system, which is not necessarily in line with a more agent-based, collaborative way of planning.

Framework control, where the decisions are made locally and approved higher in the hierarchy (European Commission 1997:45) may be a way to negotiate this gap and ensure some local or regional support for goals set at the higher level.

New perceptions of planning

When planning institutions or decision-makers execute spatial policies, this is done with specific perceptions of the field. Healy (2004) – (see also Albrecht 2006) points to a contemporary shift in the perception of spatial planning from an "essentialist" perception to a "relational" perception. A relational perception leaves more room for the individual and focuses on the socio-spatial processes instead of seeing individuals as objects acting rationally and guided by societal structures. The change is leading towards a more flexible understanding of planning, with less focus on rigid long term strategies. This way of thinking accepts the speed in which the world changes and can be seen as an approach more adoptable to present situations (Healy 2004). The long term management of urban development is – if driven by consideration for environment and landscape protection – to some extent essentialist (or technocratic) in its views. How this may be related to a more open planning process is a very interesting question, which may well become critical in near future, when new challenges from climate change may well demand more scientifically based spatial planning and urban management.

Planning expertise

The Scatter-project (Scatter 2003) pointed to the problem of planning expertise in smaller municipalities for the planning tasks which they have to perform. As complexity increases – both in spatial terms and in terms of environmental regulation and demands for network governance – specialists are increasingly needed to give a proper input of specialist knowledge to the planning process to form a basis for sustainable long term decisions. The complexities of planning may be a hindrance to the smaller cities with smaller local planning departments and fewer resources to deal with an increasingly complex planning situation. This may require technical and professional assistance to smaller, rural or peri-urban communities. In the same line the Scatter project points to dilemma that elected politicians often need rapid decisions, changes and results, in order to win the next election. Planning – and especially the implementation of strategic planning goals – is a very long-term process. And not necessarily a very popular one either, a fact which may decrease efficiency in implementing instruments for controlling sprawl (Scatter 2003).

Regional co-ordination

As pointed out before, regional level bodies are in many cases abolished or are loosing political power, legitimacy or responsibilities for planning. Voluntary co-operation between local entities may be one answer to the need for regional cooperation and is taken up in several cases. The problems with such co-operation units may be the lack of democratic legitimacy (as they consist of representatives for each of the local bodies). This gives a democratic deficit and it also leads to the co-operative bodies being less effective and less willing to make unpopular or critical decisions (Jørgensen & Ærø 2008). At European and regional level de Vries et al (2003) also report new inter-regional bodies resulting from changes in institutions, such as e.g. the Øresund region cross cutting from Sweden to Denmark. Again the co-operative body is weak, based on different institutional levels in the two partners and a lack of legitimacy and power. Especially cross national decisions may be tough, but de Vries note that interference from higher administrative level such as the EU would have a positive effect on the efficiency of the negotiations (de Vries et al 2003).

Private agents in planning

In recent years there has been an increasing focus on the balance and integration between public and private investment sectors. From the beginning of the 90´s central governments decentralized the burdens to more local instances. Not only in planning investments, but also as empowerment strategies to involve the public in the planning processes. The shift towards governance has taken place in most of the states functions and also in the spatial planning sector, as described above. The agents being more involved in the planning process does pose challenges for the "essentialist" or technical planning tradition often associated with urban growth management.

We have used Dekker & van Kempen (2004) for a brief review. The private agents in the decision-making process can roughly be divided into two different categories based on the degree of organisation: private organisations and nongovernmental organisations (NGO's), which are highly organized with a very specific objects, and the broader, non-organized public. This raises questions concerning good governance from a democratic perspective: How are urban decisions made in a field where highly organized and often powerful organisations compete with a disorganized and sometimes unidentified general public about influence? Some types of NGO's, such as neighbourhood organizations, trade unions, religious organisations, and environmental organizations, can be a mediator for the non-organised and the organised public (Dekker et al 2004)

The effect of simple visions and clear strategies

An increasing complexity of the urban systems, the decision making processes, and the wide variety of different instruments for controlling sprawl calls for clear visions and strategies to give direction and maybe even devotion to common goals. Nelson and Moore (1996) emphasise the necessity of clear targets, goals and visions as a major factor for success in urban growth management at state level in the USA and the Scatter project notes the same in a European context. (Healy 2006?) .

Some cities have had (relative) success in creating visions for future development that are easily understood – even metaphorical – and give positive connotations. Among the classics are the " Randstadt" and "The green heart" metaphor of the Netherlands, the Fingerplan of Copenhagen, and the Green Belt of London (and various green belts or Green rings all over the world). Van der Valk (1997) refers to such visions as "doctrines" and writes: "Planning doctrine refers to a coherent set of ideas which over considerable periods of time help in conceptualizing the spatial structure and development of an area and how to handle both of them". The "The green heart" evolved from a letter to the government made by en aviation pioneer in 1938 and was official replacing the term "Central area" in the mid eighties (van der Valk et al 1997).

Such metaphors have a specific way of gaining notice. The headline is simple enough to embrace other more specific policies, strategies or principles. Van der Falk and Faludi (1997) describe the life of the green heart metaphor which presented a clear problem and solution and made an alternative to standard procedure at the time. Planners were introduced to the concept and it gained acceptance and has been an integrated part of regional planning since the 1960'ies. The same story may be told about the Fingerplan of Copenhagen. It was from the beginning an unofficial plan, launched in 1946, but with principles dating back to 1928. It has gained authority by its simplicity and has been used as a concept in several regional plans over more than half a century – ending - until further - in a national planning directive for the greater Copenhagen region, Fingerplan 2007.

For such visions to succeed, however, there is need for implementation in regional strategies, in municipal planning and in the daily administration of permissions. It is difficult to say how much the existence of such metaphors has meant for the actual development, but no doubt they provide a common framework of understanding.

Simple planning principles or strategies are also a well-known way of conceptualising notions of "good planning". "Strategies are a set of concepts, rules, and/or tools to that must be carefully tailored to whatever situation is at hand if desirable outcomes are to be achieved." (Albrecht 2006: 1152). Again we may turn to the Netherlands and Copenhagen for examples. The well-known "ABC" localisation strategy for businesses is easy to remember, as is the "principle of proximity to stations" in Copenhagen. The latter states that all new office buildings must be located within 1000 m from a railway or metro-station. The principle has given rise to much discussion, and was for the first years not very effective, because many exemptions were given (Hartoft-Nielsen 2002). In the last regional plan (Fingerplan) the principle has been modified towards a more pragmatic delineation. Whether this will enhance the effectiveness is still to be seen.

Conclusions of the literature review

There is a rich literature on ”urban sprawl” and its consequences, and on planning strategies to manage it, but when it comes to specific and quantitative effects of planning instruments, evidence is scarce. In the American literature, however, there is a lively discussion about the effectiveness of urban growth management efforts. The studies which are basis for this discussion are often quantitative, descriptive and to some extent contradictory. More specific, explanatory and case based policy studies are needed in order to penetrate the topic further.

Although there are contradictions in the evidence, we believe that it may be safely said that urban growth management policies have an influence on urban growth under certain preconditions:

- It takes time for new policies to become efficient. Urban containment policies become more efficient the longer they have been applied.
- Weak or inappropriate policies may be worse than nothing, and political fragmentation and inconsistent planning regimes press growth towards the fringe. Therefore policies must be strong and applied at national, state or regional level in order to guide and support local initiatives.
- Clear and simple visions and goals may have considerable influence on the ownership and willingness to maintain an urban growth management policy over a long period of time
- Co-ordination of traditional urban containment strategies based on land use planning with other policies is crucial. Housing policies, infrastructure investments, agricultural policies, and nature protection are obvious, but also economic incentives such as development impact fees or transfer of development rights may have considerable perspectives and are by some academics deemed as effective as land use regulation.
- If an urban growth area is appointed it must accommodate sufficient future projected growth. If not, it will either not be effective, or it will hamper economic growth in the area. On the other hand, if it accommodates too much, its capacity to steer growth is negligible. Therefore long-term planning strategies combined with shot term adaptation seem appropriate.
- Rural policies play an important role in dealing with rural sprawl and especially with ex-urban development. Weak policies such as (too small) minimum lot sizes in rural areas may be even worse that nothing, whereas direct protection of natural areas works. Incentives to farms may be important and the experiences with transfer of development rights may well be looked more into.
- Political dedication and public acceptance is crucial, not only at local level, but also understanding of the need to establish and empower regional bodies to take care of urban growth management. Likewise clear national or state policies are crucial for the effectiveness of local initiatives.
- Economic incentives (such as development impact fees or road pricing) may be as effective as planning restrictions in curbing sprawl and raising urban densities, but they must be supported by spatial policies. Investment in public transit influences first and foremost the directions of growth.
- There is a growing awareness that successful growth management is closely connected to good city design in new dense developments and to urban regeneration and city design in existing urban areas. Quantitative studies to prove the connection are still missing.

PART II: Experiences from PLUREL

- Cases from Europe, China and the Pacific Northwest

Introduction

Experiences were gathered from 10 case cities; the six European case studies (The Hague, Manchester, Montpellier, Leipzig, Warsaw, Koper) and the reference case in China (Hangzhou). These are documented in the case study reports of PLUREL and further evidence was gained from meetings in some of the city regions (Leipzig, Koper, the Hague, Hangzhou). Where no specific source is given, the references are: Sinn et al. 2008 (Leipzig), Perpar 2009 (Koper), Grochowski & Pienia/ek 2009 (Warsaw), Albers et al. 2009 (The Hague), Yang Jianjun et al. 2008 (Hangzhou), Ravaetz 2008 (Manchester), Buyck et al. 2008 (Montpellier). In the appendix, the material from the case study reports has been summarised and structured according to strategic planning tools. Evidence was moreover collected from two cases in the USA (Seattle and Portland), and the greater Copenhagen region was included - no interviews have been made here, but the case have been studied in other projects (e.g. Hartoft-Nielsen, 2007; Nielsen and Larsen, 2005; Jørgensen and Ærø, 2008) and is well known to the authors. Evidence was supplied by literature and web-based information. Thus the cases come from very different planning systems and -cultures, both in Europe, and outside.

The types of policies discussed here have been derived from the case study material, and cover national framework, spatial strategies, spatial planning, rural policies, infrastructure and urban attraction, and governance. Examples of best (or worst) practise cases will be discussed. In the end we will draw conclusions cross thematic and cross case.

The national framework for planning

All the countries have a planning system with several levels for spatial development policies, from national to local. The national government sets up the rules of the planning system and points out general priorities for planning. Regional authorities generally work on spatial strategies rather than specific land use regulation, and municipal governments work at municipal level with strategic as well as regulatory planning.

This report is not focused on the planning systems (as this pertains to WP 2.1), but rather on the regional goals and the instruments with which they are carried through. However a note on the role of the national level, the primary issues that national governments are concerned with, and the significance of these issues at regional level, may be in its place here. Apart from the text here, appendix 1 collects the evidence in a schematic form.

The planning acts are decided at national level. They determine the logic which the decentralised authorities work under. The most important issues for urban growth management in the legal systems are the competencies which the regional and municipal bodies have for carrying through an efficient planning (their power and the issues, which they can or must deal with). However, they also often point out strategic themes for planning. Some national governments also launch national planning documents, mainly to point out general policy goals such as sustainability, protection of nature and agricultural land etc.

A tour of national efforts

China bases all planning goals on the 11. five year guidelines. These guidelines emphasises economic growth, promotes urbanisation (growth in urban population and jobs – migration towards cities), but also rural development. They consist of general targets and guidelines which are interpreted at regional and local level. (http://english.gov.cn/2006-03/06/content_219504.htm).

Germany has two "national layers" – the federal and the Bundesland. The federal level works at a very general level on general policies, and supports research and monitoring (Case report Leipzig). The Land Sachsen – in which Leipzig is located – has a spatial development plan including registrations of areas with special interests connected to them. This "Landesentwicklungsplan" consist of a number of goals, of which some are "musts" (must be followed), while other are more or less strict recommendations. Some of these "musts" are not spatially explicit in detail and mostly leaving room for regional and local interpretations. Issues connected to urban development are such goals as:

- the main development must take place within the larger densification areas (among which are the Leipzig region)
- in rural areas agriculture, forestry, and tourism must be kept and strengthened as primary economic activities, and
- open spaces between urban areas (or villages) must be kept clear (undeveloped).

http://www.landesentwicklung.sachsen.de/download/Landesentwicklung/LEP_Textteil.pdf

In the UK, the Planning Act 2008 is focused on the procedures pertaining to planning of infrastructure projects of national importance http://www.opsi.gov.uk/acts/acts2008/ukpga_20080029_en_1. No official "national spatial strategy" exists, but a number of Planning Policy Statements seek to explain statutory provisions and provide guidance to local authorities on planning policy and the operation of the planning system, to inspire, set goals, and disseminate best practise in various fields. Local authorities must take their contents into account in preparing their development plans.
http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyguidance/planningpolicystatements/planningpolicystatements/
There are now two main levels of plan: the Regional Spatial Strategy and the Local Development Frameworks.
http://www.communities.gov.uk/planningandbuilding/planning/regionallocal/

France has renovated the planning system since 2006. Planning is to be done at regional and subregional as well as local levels. The national level sets general goals (e.g. urbanism code), and local decisions are ex-post legally controlled by state representatives. At regional level the planning still mainly consist of general goals (not spatially specific), while the binding spatially explicit framework for the mobility plan and housing plan and the local land use plans - the SCoT – are made at the level of sub-region or city region (Communaute Urbaine and Communaute d'Agglomeration). (Montpellier case study).

In Poland the planning act from 2003 emphasises spatial cohesion and sustainable development. A national strategic plan "Concept of National Spatial Development" concern overall guidelines, while others are connected to spatially explicit areas delineated on maps, though on a large scale and defined in a fairly loose way includes principles, objectives,

guidelines, overall spatial principles for infrastructure development and regional development. The plan is based on negotiations between actors and is not spatially explicit in detail (Case study report Warsaw).

The Netherlands has a well developed national planning tradition – and a tradition that the national level heavily influences the local decisions. This is done through spatial policies e.g. the green heart protection. This is maintained through several national acts, plans and programmes. A new spatial planning act loosens the hierarchy and gives municipalities a larger autonomy as well as right of initiative (case report the Hague).

Denmark produces a spatial strategy every 4 years at least – it is not spatially specific, but normally includes political goals and graphic depictions of their spatial effects. The planning act decides which themes the municipal plans must include, among which are the crucial division between (protected) rural zone and urban development zone. The "National guidelines for municipalities" – a collection of national policy goals which municipalities must, may, or can include in plans is becoming a still more important document. After 2006 no regional plan with regulatory power exits, which means that planning authority is mainly anchored at the municipal level, however with the state as an important negotiation partner, who has the legal right to block the adoption of the plan.
http://www.blst.dk/NR/rdonlyres/56C12E7D-171B-4E00-9A72-AD9C2ECE6651/50763/planlovenpengelsk2007.pdf.
The lack of regional level planning means that in the Copenhagen Region, the state has taken over planning at regional level. A regional plan for the Capital region thus exists, produced by the state, spatially explicit and legally biding, but thematically focused on a few themes, namely urban growth boundaries, transport infrastructure and green structure at regional level. http://www.skovognatur.dk/NR/rdonlyres/168AEF1C-EE66-4FE9-95D3-92B5D4452BFD/0/9788772797793.pdf.

In both Washington and Oregon the planning acts demand urban/rural division, but let the counties / metropolitan areas define the precise boundaries. They both demand long term and relatively stable urban growth boundaries.

In Slovenia – as the smallest country - a national spatial strategy exists – in the form of maps depicting potentials and restrictions for urban development: agriculture, nature, main infrastructure etc. It is spatially explicit and includes also goals and guidelines, e.g. rural areas are protected (farm buildings and infrastructure allowed) while urban development must happen in development zones. However soft formulations are used and the map is indicative and not in great detail. **http://www.sycp.si/sycp/Main_Documents_SP.wlqt**
Regional plans are moreover prepared in co-operation between municipalities and state. These plans influence the "detailed plan of national importance" and function as a framework for municipal plans as well. The Detailed Plan of National Importance is unique in this case study in its detailed regulation on national level. It contains detailed plans for a number of themes and is intended for a direct execution of the activities of public services, particularly national and regional infrastructure, and for the needs of defence and can be used as the basis for expropriation.
http://www.coe.int/t/dg4/cultureheritage/heritage/cemat/Compendium/CompendiumSlo_en.pdf

Cross case perspectives

National level spatial policy naturally deals with spatial policies of national interest. As a very general rule, it seems that the largest countries (in people and area) work at the most general, "goal-defining" level (such as China, UK, France and federal Germany), while

smaller countries (such as The Netherlands, Denmark, Sachsen and Slovenia) tend to include more spatially specific planning goals at the national or länder level.

From an urban growth management view, it seems that the most important policy issue – apart from general goals such as "sustainable development" – is the division between rural and urban land, which can be more or less explicit and more or less strict. In most countries protection of rural land and valuable nature is a theme of national importance. Valuable nature will often be protected via special means such as national parks, while protection of "normal nature" and agricultural land is taken care of in the planning system.

In some cases, e.g. Oregon, Washington and Denmark, it is demanded that such a division is done by the regional or municipal level but without making the spatial designation at national level. Rules that apply to rural areas are relatively strict and precise.
In other cases, e.g. Slovenia and Sachsen, the state level enters into spatial appointment of areas with agricultural interests in a state level plan. The delineation is, however, relatively rough (large scale) and the wording relatively imprecise. Also, at least in Sachsen, the peri-urban areas are defined within the "urbanised zone", and national interests seem mainly to be to protect larger agricultural landscapes – not to enter into precise decisions concerning the spatial delineation in the urban fringes.

These examples represent two ways of handling the same problem of how the state acts to protect rural and peri-urban areas from urban development. While the last ensures some consensus about the spatial definition of landscapes that should be protected against urban growth, the first shows a more governance based way of thinking: The state sets up the rules and the goals, and expects that regional and local authorities will grasp the idea and loyally carry it out to their best ability. This seems to work quite well, although it also seems that some state control of the local/regional plans is felt to be necessary (e.g. in France and Denmark).

The necessity of a regional level, especially in large and complicated urban regions, is emphasised in France with the establishment of urban agglomerations and the SCoT plans at the level of the urban region, and in Portland and Seattle, where the success of the plans are absolutely dependent on a strong regional body.
The Hague also has a regional authority, but it may be discussed whether this is "real" regional as it covers only one city and its vicinity in a larger urbanized region. Maybe this limitation is – on the other hand – also what makes the regional body and plan relatively strong, because it deals with questions that are in a way felt to be "local" and thus relevant.
Although Denmark abolished the regional planning authority from 2007 this case draws to the same conclusion, for the state has found it necessary to intervene at the regional level and make a spatially explicit regulatory regional plan to delineate urban growth boundaries in the metropolitan area of Copenhagen.

Spatial Strategies

One conclusion of the literature study was that easily understandable spatial strategies can be important planning tools for anchoring and even creating enthusiasm for strategic spatial goals among decision makers – and maybe even in the wider population. Such strategies can be easy-to-remember icons (like the Fingerplan of Copenhagen) or clearly understandable (like the urban growth boundary of Portland), or they may be more detailed and precise (like in the Hague region) – sometimes to the cost of simplicity.

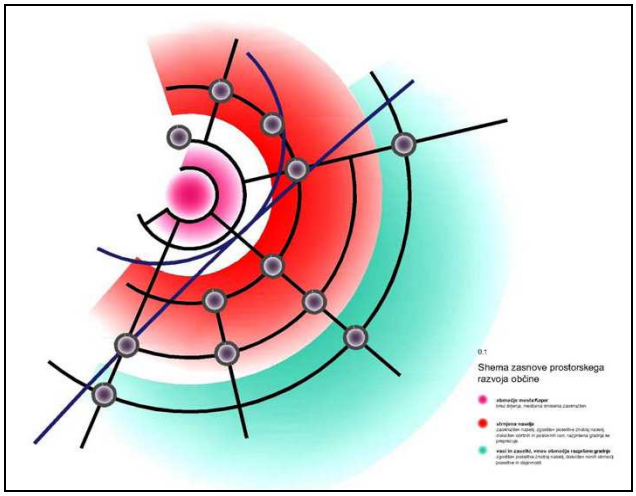
Spatial strategies occur in many different ways among the case studies. Coming from different planning histories, principles and traditions, they vary from spatially precise to not strictly defined, and they exist at different geographical levels. We will not go through every case region, but describe some of the most interesting from different viewpoints, and give examples of strategies with a clear leading motive and graphic depiction of development, and strategies which are more related to specific topography and problems.

Strategies with iconic value (leitbild)

In Koper, the Strategy for Spatial Development lies at the municipal level and is integrated with the Municipal Spatial Plan. The strategic plan had at the time of the case report not yet been politically adopted. But the general idea is to divide the municipal territory into 3 belts:

- the central urban zone and its immediate surrounding, strictly for city- and coastal activities, including renovation and reconstruction of existing buildings (limited interventions)
- the peri-urban areas where new urban development is to be concentrated along the radial traffic connections from the centre to the hinterland in a condensed settlement structure
- the rural hinterland which is to be protected for agricultural activities, forests and rounding off existing settlements.

The spatial strategy is supported by thematic strategies on “Land use efficiency and protection of the best agricultural land”: “’Green and recreational areas to increase quality of living” , and “Rural Development Plan 2007-2013”.



Scheme of spatial development of the Municipality of Koper. Case study report Koper.

Thus the spatial strategy combines a circular land use structure with a radial infrastructure- and urban system. This is a simple picture, and should be easily grasped. The main goals will be to protect on the one hand the historical city centre and on the other hand the rural areas against development which may ruin their character, and to propose a sustainable model for development in the growth zone – where urban development should be concentrated, but also balanced with needs for protection of valuable farmland. Koper is the smallest case city and thus perhaps the least complicated, but it has achieved to make a very clear "leitbild". It remains still to see how it will work in the future.

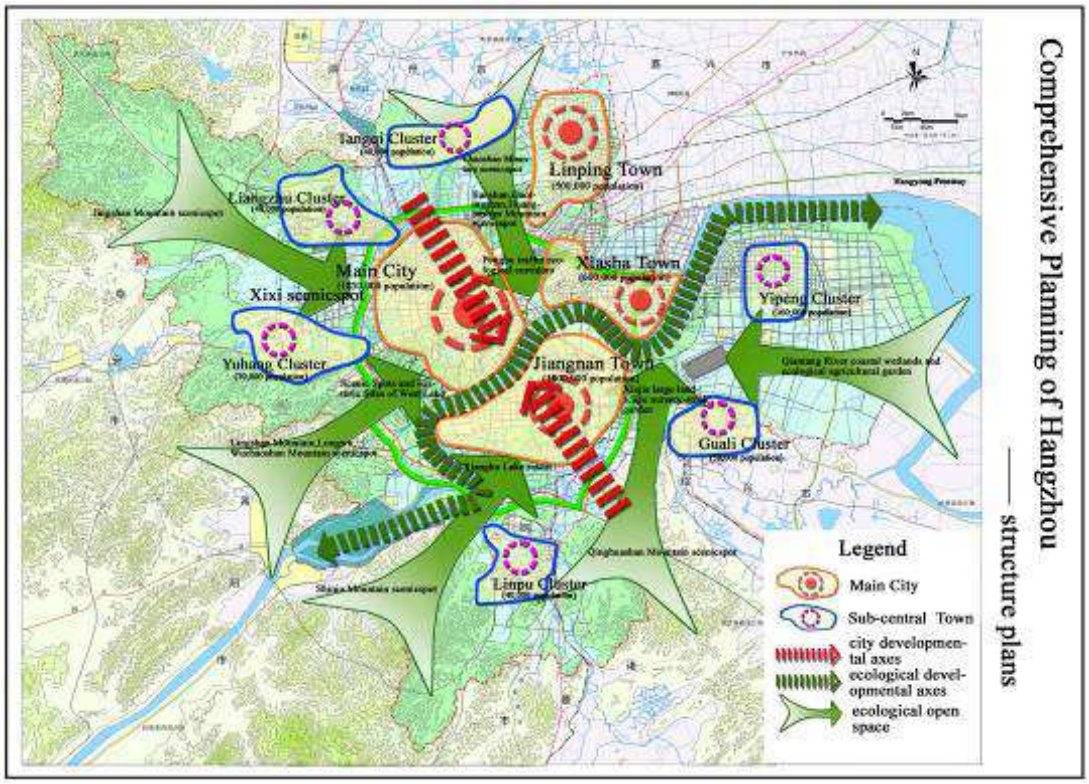
Leipzig faces special problems such as a rundown urban environment and empty buildings in the inner city and a shrinking population combined with a suburbanisation that could be characterised as urban sprawl. Thus – both at municipal and land level spatial goals go towards improvement of urban life conditions, counteracting urban sprawl, improving recreational functions and strengthening traffic infrastructure. The case report lists several examples of policies to cope with the simultaneous trends of growth and shrinkage. Examples are urban regeneration projects (URBAN II), preservation of the cultural landscape around the city (green ring) and more traditional spatial plans.

http://www.gruener-ring-leipzig.de

Green belts – or green rings – are not uncommon as spatial strategies. The green ring of Leipzig is a good example. It is easy to understand: it is depicted in a very simple manner – even logo like – and it has interesting governance aspects. 13 municipalities in the region co-operate on this project, which is not only a spatial strategy, but even more at strategy for water, environment, and recreation in the city region which is promoted through the spatial icon of the green ring. It is promoted to the citizens via a web-site, where the recreation aspects are especially promoted. Also private partners bring their own projects into this common project. Thus, the green ring has the potential of a well anchored spatial and thematic strategy, easily understood and accepted and backed by a wide range of actors in the region (Case report Leipzig and www.gruener-ring-leipzig.de).

Hangzhou municipality in itself corresponds to a large region in European terms. Hangzhou is the second city (after Shanghai) in the Yangtze delta, which is very densely populated, has an enormous urban growth, and a very fertile farmland. Hangzhou is placed on the border between the flat delta towards the sea and the mountainous areas behind, and the municipality is thus differentiated, with Hangzhou as the absolute centre in one end and a much less populated hinterland to the west. This is reflected in the municipal plan, which also reflects the wish to protect forests and nature in the hinterland.

However, a spatial strategy for the urban region proper also exists. This strategy puts emphasis on the urban spatial development strategy—"south develops (new urban development across the Qiantang River), north adjusts (restructuring of urban areas), east enlarges (Xiasha town), west optimizes (high quality residential, new urban facilities, nature protection and tourism in the Xixi area and Zhuantang area)". The map shows a clear strategy for a north-south urban axis, a "nature axis" along the river, and a number of urban clusters divided by green wedges. As such it has the easy-to-understand qualities of a Leitbild, especially when supplemented with the slogans of north, south east and west. It is backed up by a land use plan,
which is politically approved. (Case study report Hangzhou and interviews).



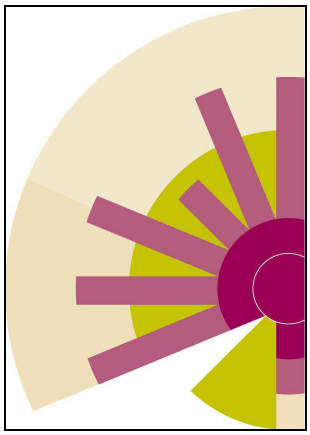
Spatial structure for Hangzhou in the Strategic Plan (source: Hangzhou Planning Bureau). From case study report Hangzhou.

Copenhagen's metropolitan development is based on a radial structure; the so-called Finger Plan. This icon dates back to the 1940'ies, and though it has never been official part of the regional planning, it has been "somewhere in the background" until 2007 where the new "Fingerplan 2007" was officially approved as a state-initiated principle and master plan for the metropolitan region.

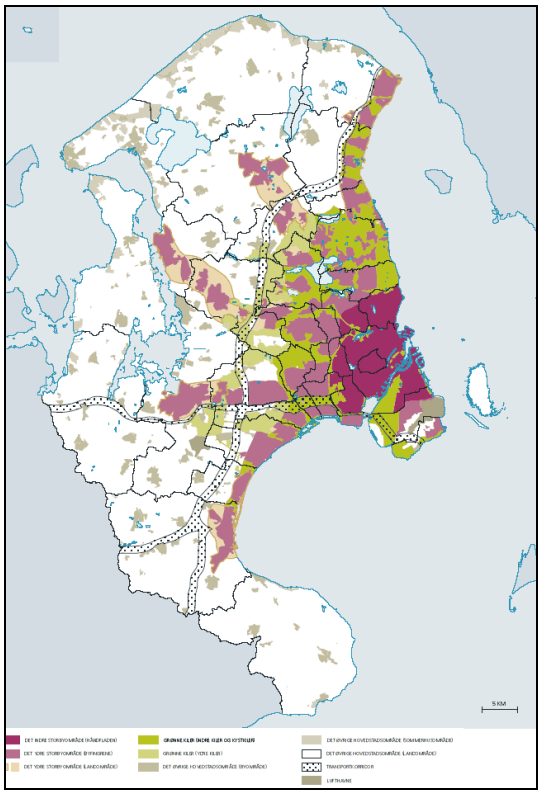
The plan has an iconic value, but is moreover a relatively detailed and binding plan for urban development zones, infrastructure, localization of office space and green space protection.

Although some municipalities have fought against it (mainly those with little or no space for development), and some planners even call it "stalinistic" in its (relatively rigid) approach,

there is a broad understanding among planners and politicians of the necessity of regulation of the urban development in the region, and a certain identification with the plan. Probably the early and clear vision of the principles for of urban development has helped this relative consensus to grow. The plan does not cover the full functional region, and some actors are working to extend it towards the west and south.



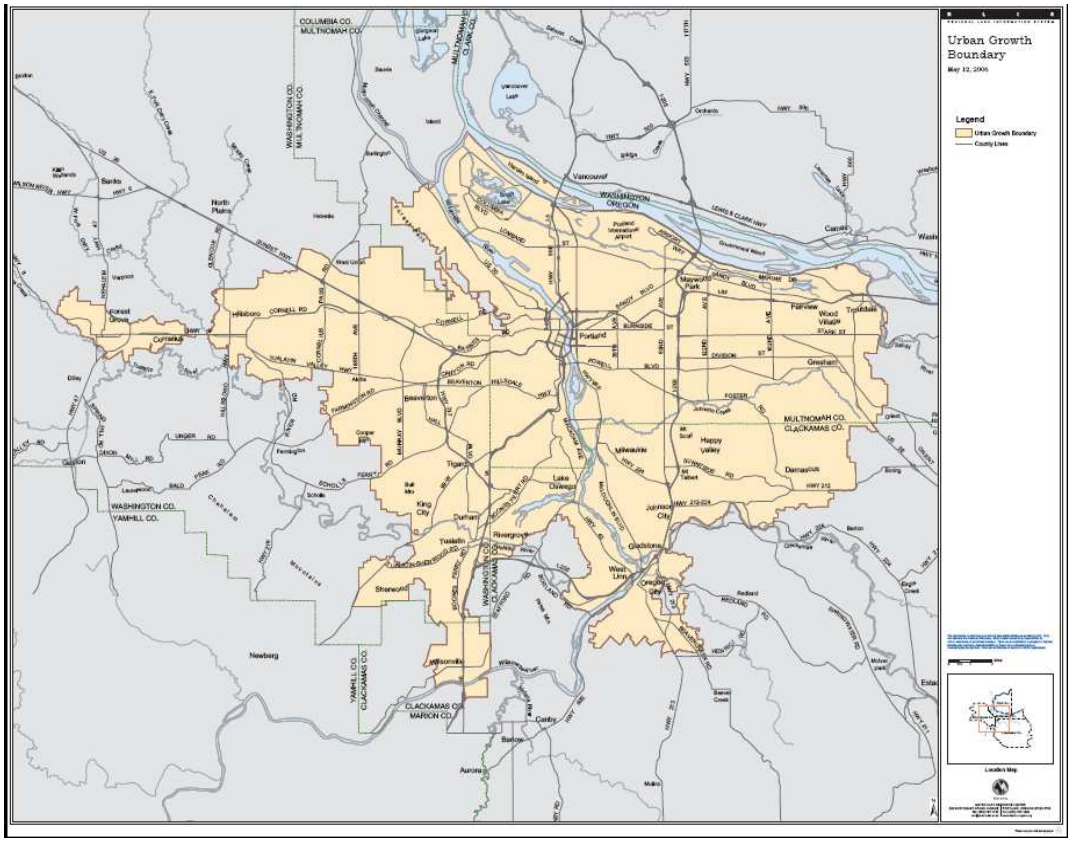
The iconic view



The "land use" plan, incl. growth areas in fingers and a new transport corridor

Finger Plan 2007 for Copenhagen metropolitan area.
http://www.skovognatur.dk/Udgivelser/2007/Fingerplan2007.htm

The Urban Growth boundary of Portland is special in the way that it does not depict a development direction or an inner coherence, but is focused on the – relatively stable – boundaries for urbanisation. The strategy is thus in a way mono-thematic in its core (urban vs. rural), but it is of course supplemented with other types of spatial regulation, strategic goals and urban policies. The boundary was first approved politically in 1980 and has been re-evaluated every five years. As a mental line and a picture of the city structure it is accepted as the picture of the future development of Portland, and is even a part of the city identity, much in the same way as the Fingerplan of Copenhagen.

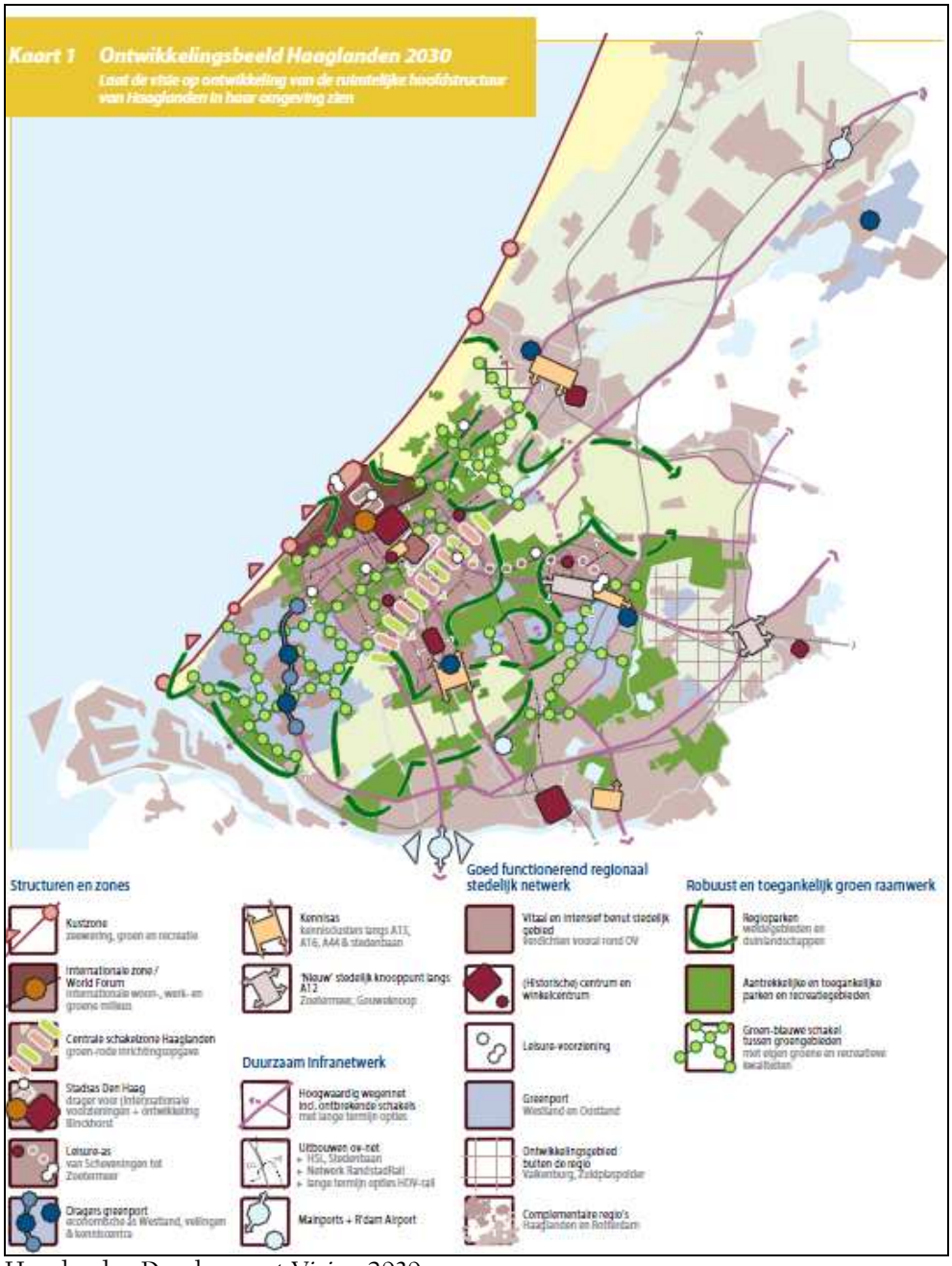


Map of urban growth boundary, Portland 2006
http://www.oregonmetro.gov/index.cfm/go/by.web/id=277

Detailed and specific strategies

Although we would not venture to say that the strategies presented above are not detailed, it may safely be said that they deal with only few ideas and distinctions – such as Koper dealing with three types of land, Copenhagen with four themes for the planning, and Portland even with only one distinction: urban or non urban. They are thus easy to grasp, but they do not deal in any detail with existing urban structures or topography – in short with "place". The other type of urban/regional strategy deals more specifically with place related problems and priorities. They are more complex and perhaps more useful for prioritizing. On the other hand they are less iconic, and might be seen rather as a registration of the current problems and values than as a vision for the future of the urban region.

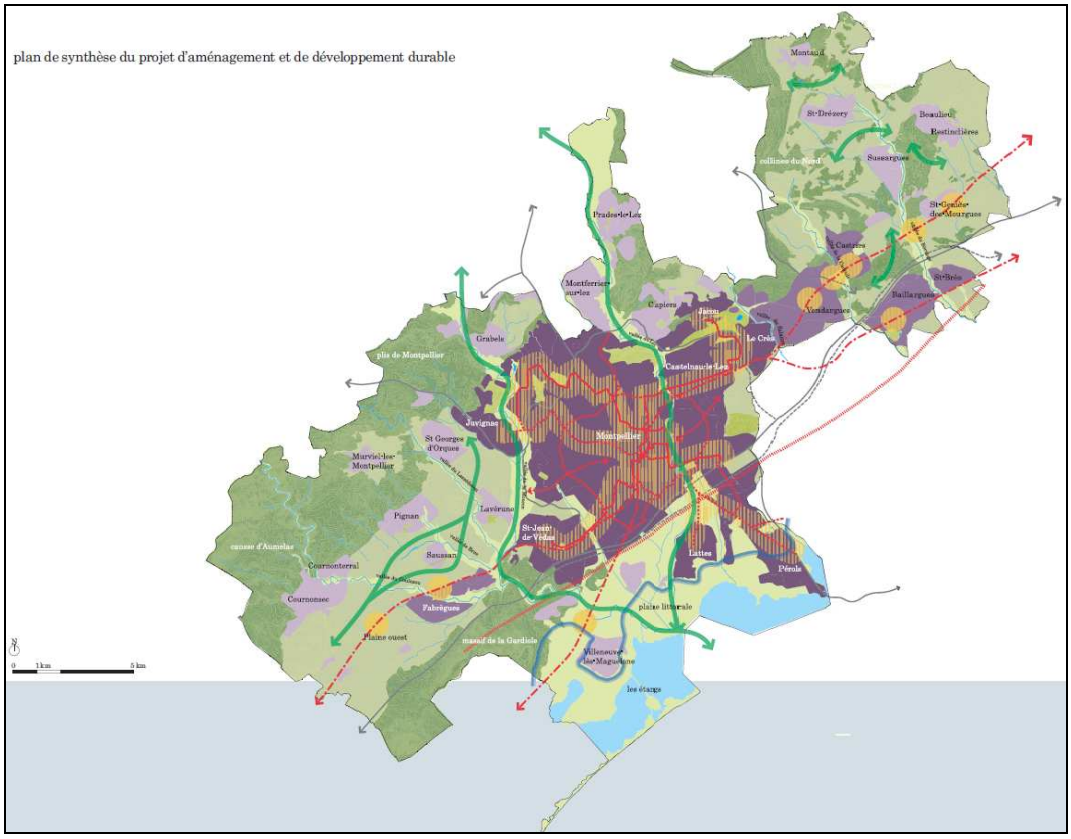
The Hague Region has developed a development vision pointing towards 2030. It focuses on urban functions, urban infrastructure and a robust green framework. The map of development aims includes many and diverse topics, and is at a medium detailed level – and not very easy to understand. However, this strategy is offering specific policies of how to implement the strategic goals, which is unique.



Haaglanden Development Vision 2030
Source: Regionaal Structuurplan Haaglanden 2020 (p.9)

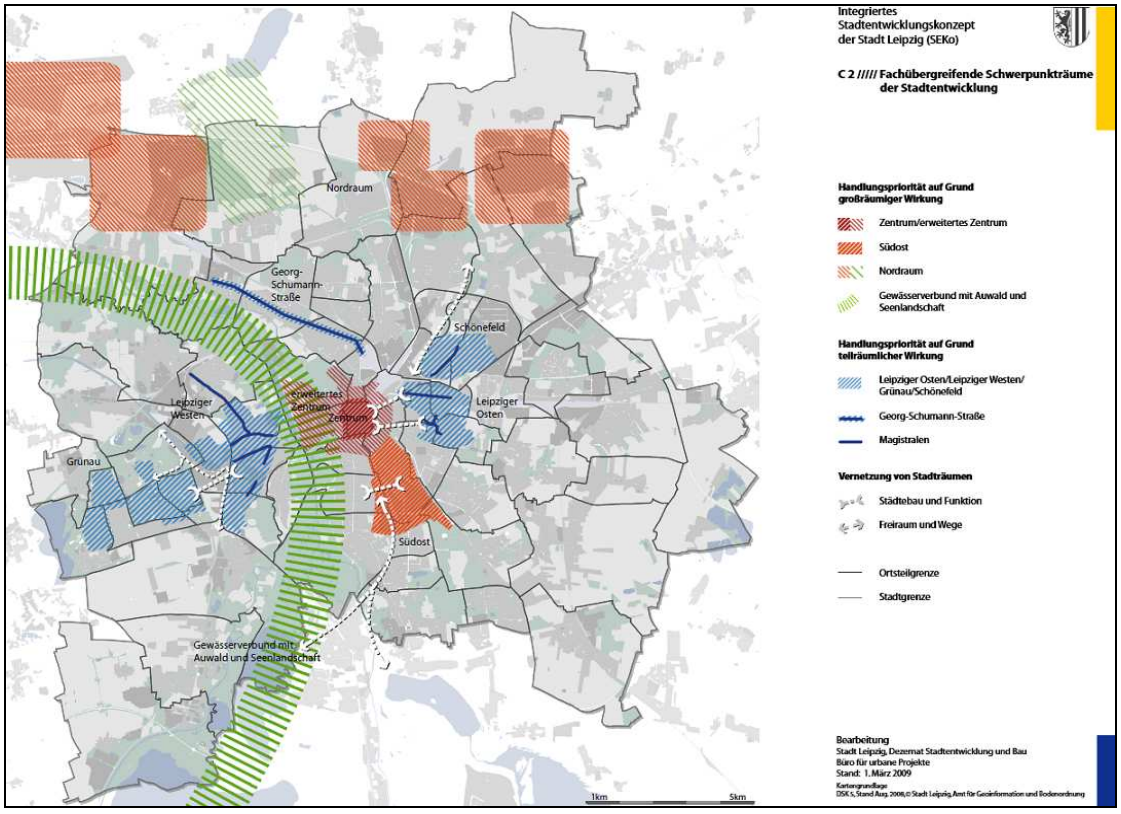
One main aim of the strategy is to strengthen agricultural land use in the urban fringes of the region, and a number of policies are listed that should lead to this goal, such as stimulating intensification of agricultural land use, facilitating increased farm sizes and multipurpose farming, supporting ecological and water related services, promoting regional products / branding, land purchase and land banking, and zoning. Most of these are not spatially specific. To support these goals, also a number of initiatives on recreation are set up, such as cycling rings, walk or water recreation routes as well as culture projects to increase the identity of the territory.

The SCoT – the regional plan for the urban agglomeration of Montpellier – also takes its starting point in the topography and the qualities or problems connected to specific places. The particular elaboration of the SCoT included: "sight inversion" meaning that they started by defining site qualities, mainly landscapes, in order to protect them from urban developments as well as to reinforce their characteristics. In other words, "landscape, natural and agricultural lands are the basis of "territorial planning" where green spaces considered "as great city´s quality" (p.47 in case report) as it can be seen on the synthesis map below. The plan does not lack overall goals to steer it, working on three main concepts: a natural city, a shared city and a thrifty city, specified in principles of protecting landscapes and increasing urban densities and mixed use.



Synthesis map
Source: SCoT of Montpellier Agglomeration;
Planning and Sustainable Development Scheme, p.98-99.
(PADD : Projet d´Aménagement et de Développement Durable)

Leipzig is yet another example of a strategic plan – municipal in this case – which takes a starting point in the existing city and its problems, and prioritizes the initiatives and places where they should happen. As mentioned before, main problems are a shrinking population, a run-down urban environment and a tendency towards urban sprawl. Many plans and programs are used to face these problems. The spatial strategy map shows prioritised areas for action, either of regional or local importance. The strategy thus prioritises actions in space, based on the existing conditions.



Leipzig municipal plan: Areas with special focus. www.leipzig.de

Cross case perspectives

In the examples from the cases we have found both iconic, very simple visions and more complex ones, related to topography and place. Many however are mixed. Simple and iconic visions are of course backed up by more specific and detailed planning, and some of the complex, analytical and place orientated visions have also managed to include a graphic simplification of the goals (e.g. Leipzig).

As seen below, the specific land use planning in the form of zoning is main-stream in most of the cases, thus it is very important that the regional (and municipal) strategies show the way and make up a framework for the daily work with land use planning and legal zoning. Compliance between planning levels is found to be essential, both in the literature and in the cases (e.g. Copenhagen, Montpellier, Portland, and Hangzhou). A commonly agreed strategy probably lessens the temptation to give dispensation from already decided plans (e.g. Warsaw).

The vision for The Hague region is probably the most advanced in relation to integration of the policies that are necessary for implementation. Not only planning instruments are mentioned, but also initiatives in other policy fields such as agriculture, and they are set on the budget as well.

Each type of strategy has its merits and drawbacks. The simple strategies may be criticized for being too simple and not taking local circumstances (place) into account, but might shape and propagate a common urban identity, while the complex and analytical plans are harder to “identify oneself with” but gives planners and administrators a good administration tool.

Spatial Planning

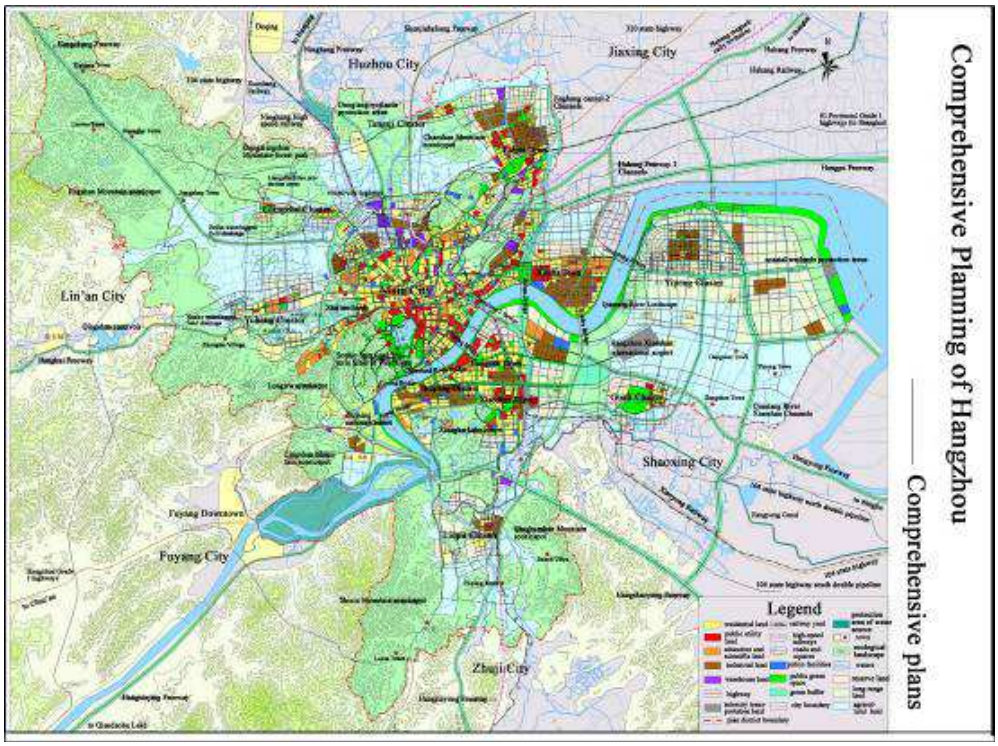
What we call spatial planning here, could also be referred to as land use planning. This is the legally binding land use plans, approved by the political level they pertain to, and used for the administration of land uses, infrastructure investments etc. The spatially explicit and legally binding land use planning provides an important underpinning of the strategic plans.

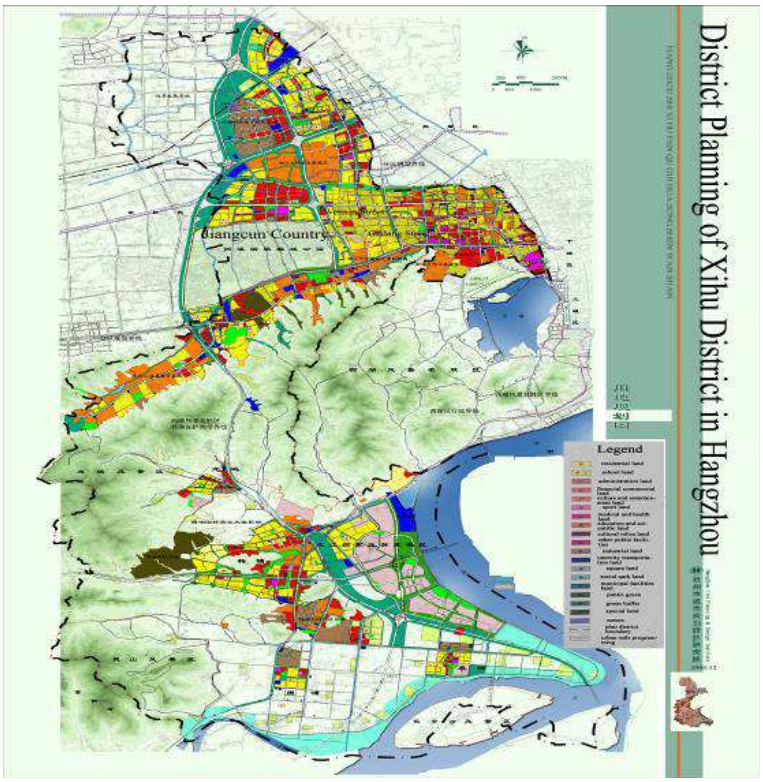
Very important are the connections between the different planning systems to ensure that there is compliance between overall goals and the different levels of planning from regional strategies to local zoning plans. This is found in some of the literature to be one of the most important elements for an efficient planning system.

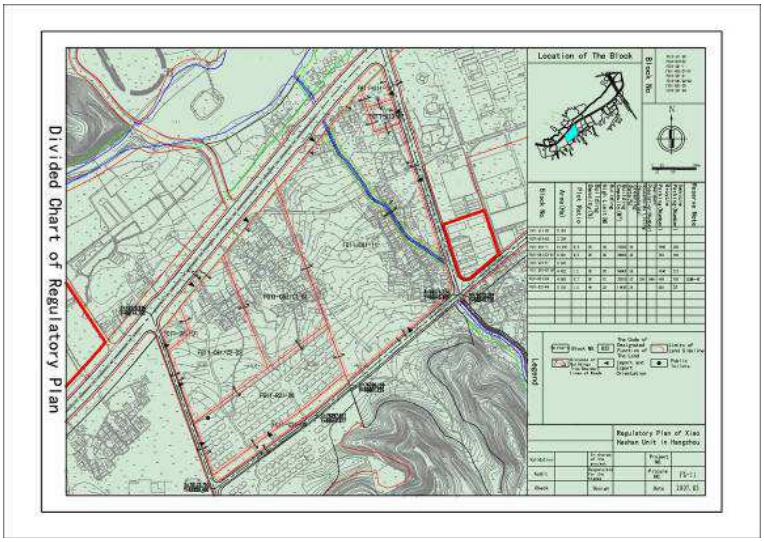
However, this "traditional" land use planning with compliance between planning levels exist in most case studies, and – when established – usually functions quite well, with the municipalities being the main authority.

In general the most detailed plans (i.e. land use plans) are under the responsibility of municipal authorities, which are generally smaller than the city region. For example, the municipal zoning plan in the Netherlands, PLU (Local Urbanism Plan) in French municipalities, and Land Use Development Plan in the Polish context. In Oregon, where Portland is located, each city (smaller municipality which is part of the metropolitian area) has to implement urban growth boundaries on its own territory. In Seattle, the municipality (part of the city region) prepares zoning plans for its territory; while counties prepare zoning plans for unincorporated land (land outside municipalities) and rural areas.

An example of a hierarchy of planning types is seen in Hangzhou where the basis for the iconic strategy is the comprehensive land use plan, which is again detailed in district plans and local regulatory plans.







This page and former page: Hierarchy of comprehensive land use plan, district plan and regulatory local plan. Planning bureau of Hangzhou. Case study report Hangzhou.

An increasing scale of urban regions

One important aspect for planning is the increased scale of the urban regions and hence of planning. Even though municipal planning instruments remain strong, new planning documents have been developed at a more strategic scale. Urban and peri-urban contexts do not fit within a single municipal territory, especially in cases (as e.g. in France) where the municipal territories are small and rural-urban regions are fragmented in many municipalities, if not new regional levels are put in; thus the need of enlarging the scale for spatial planning instruments.

In Greater Manchester, two developments plans are made at the city-region level; the Manchester City-Region Development Program (2006) aims at enhancing the knowledge economy; while the Manchester City-Region Sub-Regional Statement and Action Plan (2005) deals with issues such as transport, housing and environmental quality.

In the case of The Hague Region, the Joint Regulation Act updated in 2005 (WGR+) states that this authority level can write a Regional Structure Plan; it is worth mentioning that the municipalities' in a City-Region in the Netherlands are obliged to work together for task such as spatial planning and traffic management.

In Montpellier Agglomeration, the new strategic planning instrument for the region corresponds to the SCoT (Territorial Coherence Scheme), which is co-ordinated at the new level of the urban agglomeration (urban/regional level). It was adopted in 2006 and it aims at achieving global objectives of sustainable development and to solve current urban issues. However the more remote peri-urban areas outside the SCoT are not guided by the regional plan, but only by the municipal level (which in France is very small).

For the case of Warsaw Metropolitan Area, the report states that a spatial document at the metropolitan scale is under elaboration.

In both cases of Portland and Seattle, the regional scale is also a strong actor for planning documents. In fact, the Metro (Portland) and the Puget Sound regional bodies (Seattle) implement urban growth boundaries for limiting urban sprawl at their regional scales. They also delineate natural resources such as agricultural land and forest.

In Copenhagen, the lack of a regional body has obliged the national level to take over planning at the regional level to ensure regional coherence.

The case studies reports also mention planning documents that have more specific issues. A Green Belt planning instrument has been developed in both Manchester and Leipzig. Instruments focusing on inter-regional transport have been developed in The Hague and Rotterdam (Regional Traffic Plan) and Montpellier (PDU, Urban Transportation Plan). Manchester and Koper have developed Rural Development plans. Finally Leipzig aims at protecting and developing its floodplain area.

Rural Policies: economic incentives and land use regulations directed towards rural areas

The other side of containing urban growth is strengthening agricultural land uses to resist pressure form urban growth, and also directly to protect agricultural land against development.

Three main directions can be distinguished for rural policies: economic development, land use regulations and improvement of the quality of life in rural areas. Special situations and instruments are found in China and the Pacific North West.

The general European rural and agricultural policies were not put in place with the distinct aim of balancing urban growth in peri-urban areas. The general aims of the European Rural Development Policy (RDP) are to improve the competitiveness of the agricultural and forestry sector (axis 1), improve the environment and the countryside (axis 2), and improve the quality of life in rural areas and help the diversification of the rural economy (axis 3). The three "axes" are supplemented with a process-oriented goal/axis: the LEADER (governance orientated) approach to implementation of policies. Specific instruments are e.g. improving knowledge and innovation, improving the quality of farm products, promoting sustainable farming and forestry, compensations to farmers for environmental services, encouraging a more divers economy and improving quality of life, e.g. through promoting micro-enterprises, rural tourism, basic services and village renewal. These instruments have to be implemented and used at national or regional/local level with funding support for the EU.

These aims and instruments can not only be applied to rural areas, but are also relevant for strengthening the agricultural landscapes in peri-urban areas against urban development, although the specific circumstances may be specific from more remote rural areas. In peri-urban areas the pressure from urban land uses on agricultural land is generally very much stronger than in peripheral areas. Farms may be smaller and more diversified, and full time farming and increased farm sizes is potentially rendered economically un-viable at the urban fringes because the land rents are higher than production outcome (van Rij 2008). In some areas the policies go towards promoting increased farm sizes and thus competitiveness (e.g. in the Netherlands), while in other cases (e.g. Copenhagen) the trend goes towards more "urbanized" part-time farming activities (Primdahl et al 2006, Madsen et al. 2010). Thus special policies and instruments may be useful regarding agricultural land in rural-urban regions. At the European level no specific incentives are put in place to strengthen agriculture in peri-urban areas.

Regional rural development plans

In some of the case study regions, the economic importance of the agricultural production seems to be very limited, such as e.g. Manchester, where agricultural land covers only around 10% of the region's area and agriculture stands for 1% of the employment market (Case study report Manchester p 31), and many are smallhold ownerships (ibid. p 39). All the same, Manchester is an example where supra-national and national rural policies are supplemented by regional policies to strengthen agriculture. The RDPE Implementation plan for Greater Manchester 2007-13 is a dedicated rural plan for Greater Manchester. It is a part of the general implementation plan for the North West of England, which is funded

with 75 mill £[1], and is tailored in accordance with the general aims of the RDP , but focusing especially on improving the competitiveness of agriculture and forestry and improving quality of life (axes 1 and 3). It focuses on agriculture *per se* but also on adding value to products through the processing and diversification of the rural economy. Specific instruments (apart from vocational training) are not mentioned in the case report (p.39).

Compensations

In Haaglanden, the Green/Blue services incentive is an attempt at supporting the creation of ecosystems services in agriculture by strengthening (sustainable) agriculture. It includes compensations to farmers for provision of ecosystems services. Thus it is connected to Axis 1 and 2 of the RDP. In Haaglanden, the Green and Blue Services program is seen as a strategy to strengthen agriculture in the urban fringe, and is area-specific. It differs from existing European and national compensation measures in that it is to be funded from the local level and even include private funding, and it is developed together with farmers and local stakeholders. It is also an alternative or supplement to land use planning, as it targets land owners and involves initiatives from below (Westerink et al. 2008). One of the specific funding possibilities of the green blue services programme is the Midden Delfland Green fund ('Groenfonds Midden-Delfland'), to which a number of stakeholders pay contributions, among which are neighbouring municipalities that rely on Midden Delfland for the recreative possibilites for their citizens.
Several acitivites are eligible for subsidies, from natural protection to preservation of rare livestock breeds , culture (buildings) or educational activites (school classes). (Westerink et al 2008). The Green Fund has contributed around € 300,000 to investments relating to landscape and cultural history (Case studie report Haaglanden).
According to van Rij (2008) the expected extra annual income is to be about €3,000 per farm, with a total expense from the program of €240,000 annually. She argues that the system is in-efficient in the sense that "transaction costs" – planning and administration in advance – turned out to be very high. The subsidies cannot compensate for the increase in land rents, which is the real threat towards peri-urban farming. "Not changing the ground rents, would have been an implicitly more efficient way to subsidize the preservation of the metropolitan green landscape", argues van Rij, but she does not discuss the additional benefits which may have occurred from the compensation being related specifically towards ecosystems services.

Land banking and transfer of development rights

Land purchase is mentioned as a successful strategy in Midden Delfland (Haaglanden) to resist urbanization. It implies public compulsory land purchase, and the land afterwards being developed into recreational functions or leased at long term by farmers for agriculture. This will mean that the difference between the lease price and the actual interests will be paid by the public (who – on the other hand – stays in "control" with the land). It is thus heavily based on public funding, and – probably – only viable in areas where it is of essential public interest to protect certain areas of agricultural land. Haaglanden may well be such a case, as agricultural land is very scarce and of essential importance to the recreative possibilities, general liveability and ecosystems services in the region. Case study Haaglanden concludes that this policy has been effective in the case area.

In the American cases exist the possibilities of "transfer of development rights", meaning in broad terms that (part of) revenues from urban development can pay for protection of agricultural areas. The idea is that farmers will be compensated for giving up development

[1] For the North West implementation plan, see http://www.nwda.co.uk/pdf/Draft%20RDPE%20NW%20Implem%20Plan.pdf

right on their plot (thus protecting it as agricultural land "forever") against a compensation deriving from giving "extra" development rights in urban development projects. Such development rights may not only be used for protection of agricultural land, but (more often) ensure urban qualities such as affordable housing. This involves that the official land use zoning plan gives a limited development right in central areas, but that an extended right (more stories on the buildings) can be negotiated against compensation from the developer (Interviews Seattle).

In the Netherlands a similar, but slightly different, approach was used, as the origin of the Midden Delfland Green Fund is closely connected to an urban development project. In this case it was the municipal revenue from this project (in Delft) that was canalised into the green fund, in order to support the green development in the neighbouring municipalities. The approach seems to be a success, as a neighbouring municipality, Maassluis (Rotterdam region), will also make a contribution to the fund in connection with a large housing construction project (Case study Haaglanden).

Land use regulations

Strict land use regulations are probably the easies and cheapest way of preserving landscapes against urban development. Provided that the rules and the plans are clear – and can be effectively implemented, it can prevent urban development and ought to avoid also excessive high land prices in peri-urban areas due to speculation expectancies. Urban-rural zoning is not just about preservation of agricultural or natural landscapes, but also about ensuring that urban extensions can take place on the land most suitable for urban development. This may not only be on the fringe of the "big" city, but also as development of villages and smaller towns (Montpellier).

However – as stated in the literature review and in the chapter above on national policies - the efficiency depends on the specific formulation in legal terms, and on the political will to formulate and carry through the regulations. Also, land use regulation does not in itself support or promote quality of life or environmental qualities in peri-urban areas. This presupposes policies as the above mentioned directed towards rural development, economy, and sustainable and multifunctional cultivation practises.

Portland is perhaps the clearest example of a land use regulation on a regional level that simply makes a frame for urban development. Although it has been criticised for potentially leading to leap-frog developments outside the region's border, the effects on the landscape is very clear – the urban border is clearly visible, and the city is – in US terms - fairly compact. Also Copenhagen and Montpellier have fairly clear regulations that may easily be perceived in the landscape.

Warsaw have land use regulation plans, but according to local specialist information, the local level can easily give dispensation, which means that the seemingly well-regulated regional plan is not much worth – leading to danger of filling up the last open spaces of the Warsaw region.

Hangzhou has a special legal and ownership system for the rural areas, which seems to make spatial policies for the peri-urban areas more difficult. Agricultural land is owned by village cooperatives, and cannot be developed for urban uses[2], nor can anyone other than

Funding: http://www.erdfnw.co.uk/news/announcement-of-the-75-million-rdpe-plan-for-englands-rural-northwest

[2] (Exept when changed into an area of urban status, which requires certain measures, including a generous compensation to the former owners from the municipality.

village dwellers settle there permanently. This means that a peri-urbanisation as known in Europe, where urbanites move to the countryside, is non-existent.

On the other hand, the countryside around Hangzhou is rather densely populated, and there is no rule to prevent rural dwellers to build. They may also let housing space to migrant workers, who work in the cities. The landscape is thus not only densely populated, but also densely built up with single family units in a seemingly unplanned and scattered manner. There are even rural lands inside the urban fabric, and these are built up with densities even seemingly corresponding to medium-density European cities.

Although there are strict policies to ensure very high exploitation rates of new urban developments and urban sprawl in a European or American sense is thus non-existing, this "rural sprawl" may in time become a considerable problem, especially if the strict rules concerning ownership and use are given up.

Cross case perspectives

Regional or local strategies for rural and agricultural development in Europe are indispensably connected to the European Rural Development Policy, and follow the goals/axes presented here. Also, the largest funding possibilities come from the EU funds, which are supplemented by national funding. To envision strong rural policies that are not related to this perspective is very difficult – and the policy is rather broad in its scope.

However the case studies show that it is possible to work on rural development and landscapes on a local level, in peri-urban areas, and with specific goals connected to the local area. Even provision of local funding is possible. For funding it may be very interesting to investigate further the potential of economic instruments such as transfer of development rights. That investors and developers who are dependant on surrounding landscapes to ensure the attractiveness of their development also contribute to the preservation of it, may also be an issue to investigate further.

Rural policies and land use planning are often seen as totally different types of instruments that are more or less contradictory and draw on different traditions and different ways of regulation. However, to work in a focused way with compensations or rural development in peri-urban areas, it is important that the goals are clear as to where to implement which instruments and why. Spatial distribution of landscape and urban values are discussed and agreed upon in the spatial planning system and with the regional strategy as a framework for consensus. But it is not geared to implement polices and priorities in itself. A close co-operation between the two systems will thus be essential to reach a good result.

Urban attraction: urban regeneration and infrastructure development

In much the same way as rural policies are important to enhance the conditions for rural and natural functions in the peri-urban landscapes, most case cities also rely on urban polices to attract urban functions and make urban life easier, more pleasant and more efficient, thus attracting urban functions and lessening the urban pressure on peri-urban landscapes. These polices and initiatives were generally not developed with the specific goal of hindering urban sprawl and protecting landscapes (typically they were developed as measures to repair degraded inner city slums), but since the 1990'es they have in many cases been interpreted also in this view, and in some cases clearly connected to it. The American term "smart growth" (Smart growth network 2003 and 2006) is a typical metaphor for this way of thinking.

In many cases the refurbishment is connected to infrastructures development. The infrastructure mentioned here is thus infrastructure connected to urban regeneration initiatives, not large infrastructure projects such as motorways with regional, national or international implications.

At the European level urban policies are not very prominent, although efforts have been done, starting with the well received and now almost classic "Green paper on the urban environment" from 1990 (Green paper ref). Work has mainly been done in the urban environment field, and mainly at policy intentions level.

However , the URBAN and URBACT programmes[3] are worth mentioning, starting back in 1994 as the first attempt to use regional funds for enhancing quality of life in deprived urban areas. The aims have been social as well as environmental – with sustainability as the key word. In URBAN II and URBACT there is a strong focus on governance, learning and inter-city networks. Leipzig mentions the URBAN II project in the case study as one of the policies towards counteracting a further shrinking city core and thus preventing peri-urban sprawl.

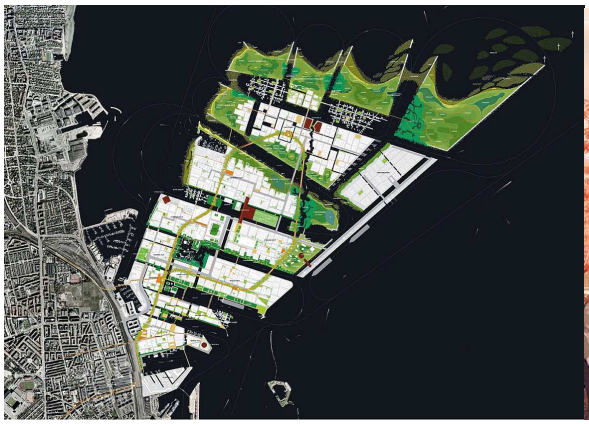
All European case cities work in this line, Leipzig being dominant in the mentioning of this policy field in the case report. Leipzig is probably the case city with the strongest need for urban revitalisation, and this is also prominent in the regional strategy cf above. Efforts are made to make the shrinking population – and small investment levels – less felt. One of the instruments is greening of derelict areas, so as to make the city more attractive in a flexible manner.

Also Montpellier works in the line of enhancing urban qualities as part of the SCoT, and the inner city redevelopment by Bofill is one example of one grand revitalisation project with almost symbolic value, and connected also to a new and effective tramline serving the city centre.

[3] URBAN: http://ec.europa.eu/regional_policy/urban2/urban/initiative/default.htm,
URBAN II: http://ec.europa.eu/regional_policy/urban2/index_en.htm
URBACT: http://urbact.eu/

New development near the old town of Montpellier.

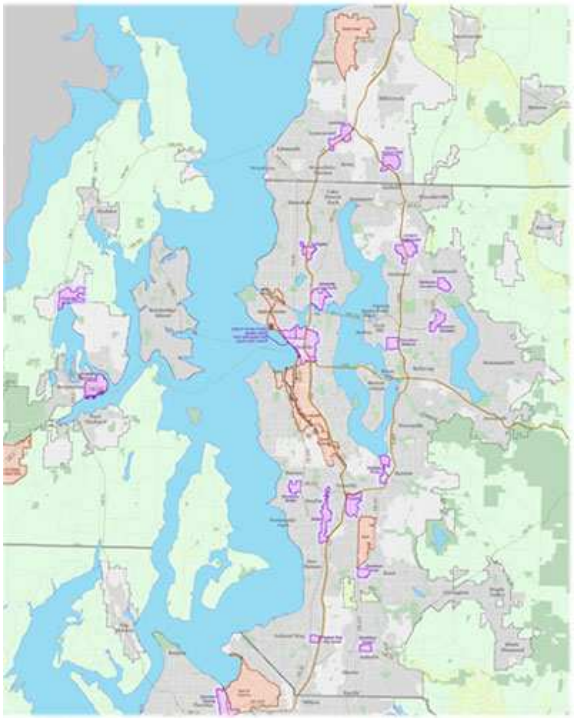
Copenhagen has clear intentions for revitalisation in the dense city structure. Much work has been put into making the city liveable over the last many years – from renewal of technical infrastructure and courtyards to upgrading the bicycle network, but only after 1990 this has been seen in the light of a regional strategy for compactness, although for the municipality of Copenhagen the wish for new and richer inhabitants is probably the most important driver.
In the 1990's a new district, Ørestad, was built in conjunction with a new metro line. The district covers 310 ha and the aim is 20.000 inhabitants, 60.000 workplaces and 20.000 students over a long period of time. The public transport connections are very good, and the architecture new and daring – this is maybe why the place seem to be popular among young city dwellers not very much interested in local life, but more in the connection to the metropolitan areas a a whole. The re-use of vast habour areas near the city centre is also seen as part of a compact city strategy. Recently, a plan for the northern part, "Nordhavnen", was launched, foreseeing 40000 new housing units and 40000 workplaces in a dense, mixed use setting. The area is not well connected, neither to public transit nor via car, but transportation will include a new road structure and (probably) a new metroline or other public transit solution. In this way the project is not optimal - yet.



Winning competition project by COBE, SLETH MODERNISM and Rambøll. Source www. Nordhavnen.dk

In Hangzhou there is little focus on redevelopment. Some projects has been carried out to cater for the recreation and entertainment needs of the increasing urban population, e.g. re-development of peri-urban lowlands used for settlement and fish production into a wetland park; and re-development a the historical CBD into a thematic touristic strolling and shopping area (including widening of existing streets to increase capacity). However, because of the high growth rate the city structure is generally quite new, and the main focus is on the new developments. City living is – in general – seen as attractive although the new developments are very dense. Some consideration is given to the beauty of the out door areas and emphasis is put on high quality of life/ high living standards, including standards for floor space per capita as high as 60 sq. meter per person.

Seattle has pointed out local, suburban growth centres, where redevelopment should take place. This is clearly seen as a supporting policy measure to the general, regional growth management plan. Consideration is given to densification, mixed uses and to enhancing public spaces (e.g. smaller blocks, sidewalks) and generally making the city functions, including shopping accessible for pedestrians. The growth areas are pointed out in the regional plan (i.e. at regional level) but the specific plans for the urban growth areas are to be provided by the local governments and in dialogue with citizens. Some areas have loyally filled in the plans and taken the opportunity for developing their area (including some funding from the region), while others have still to make a plan.
This policy is interesting from a European point of view. In European cities, inner city regeneration can be considered main stream. Much consideration has been given to socially and physically strained areas and housing estates in the suburbs (e.g. also under the URBAN programmes). But the Seattle policy is about upgrading normal, relatively well functioning suburban areas to more urban centres as a means to enhance city living and relieve urbanisation pressure on peri-urban areas.



Source: **http://psrc.org/growth/centers**
See also : **http://www.psrc.org/growth/vision2040/pub/vision2040-document/**

Cross case perspectives

Although these types of policies are not directly relevant for development in peri-urban areas, they probably still have a significant bearing on the urban pressure in these areas. At least this is the belief in several of the case cities. Some case studies do no mention this element of planning strategies, although it certainly exists in the areas.

Just as rural polices were not made for the benefit of peri-urban areas, neither were urban regeneration polices. The prime aim is to enhance urban living for citizens and businesses, and thus provide a framework for economic long term growth. Accessibility by public transit and soft-mode transport is an important part of these policies.

The case of Seattle points towards the usefulness of a focus on traditional suburban areas a potential for smart growth initiatives.

Integrated strategies which address both urban and rural affairs in the city region may be the way to put these policy fields into a common framework. The SCoT of Montpellier does so, at least at the visionary level.

Government systems

This section will be relatively short and mainly follow up on some of the observations made in the other parts of the report. It will focus only on government aspects related to spatial and land use planning and related issues.

The term government systems is understood here as the framework within which both traditional public decision-making (often termed "government") and network-and agent based decision-making (often termed "governance") take place.

From cases as well as literature it seems clear that to carry though efficient planning for the peri-urban areas (i.e. for the public to have some control over urban development in order to ensure or promote a balanced development in the peri-urban areas) at least three conditions must be fulfilled: There must be a legal body with regional competencies; there must be compliance between different levels of planning; and not least: there must be a strategy – or strategic goals - based on some consensus, and a will to carry it through at all levels.

Regional bodies

In the case of smaller cities, like Koper, the municipal administration may cover the whole rural-urban region, but in most of the larger case cities regional administrations exist. In some of the cases, a regional body has been formed – or has disappeared – in the later years:
The French system with urban agglomerations was formed to take care of regional problems in urban regions in an otherwise fragmented administrative structure. The urban agglomerations, however, do not always cover the outer part of the peri-urban areas, which are therefore "out of regional control". In rural areas, a SCoT is not to be prepared, and like stated in the case of urban growth boundaries in Portland/Seattle, this may lead to leap-frog development.
In Portland and Seattle it was found that a relatively strong regional body was necessary for implementation of urban growth management, and in Copenhagen, where the body responsible for regional planning was abolished in 2006, the state even found it necessary to make a regional plan for the Copenhagen area.
The Hague region consists of six municipalities and is constructed with representatives from all municipalities in the deciding body. Throughout the Netherlands, there are similar initiatives for cooperation between cities to address inter-municipal issues, such as transport and spatial planning. The region prepares the spatial strategy and has a budget to implement it, but the power in the region is based on the municipalities taking part in the regional co-operation. In this way the decisions should be anchored within the municipalities, but on the other hand it might be difficult to push the strategies in directions which some of the partners do not like. In the case report there is no direct evaluation of this structure. The Hague covers only a small part of the Randstadt (1 mio inhabitants), and is in itself participating in co-operations within the broader region.

Compliance and commitment

In all cases there are demands or expectations of compliance between planning levels. However, local municipalities decide the legally binding land use plans, and in some cases municipalities have a considerable freedom within the regional framework (which is of

course also the idea of having a municipal planning level: That the urban development may be planned and implemented according to local needs and preconditions).

In Warsaw a regional body, preparing a regional plan exists, but it is unclear to what extent it must be followed by municipalities, and Plurel experts question especially the possibility to give building permissions on demand, which may threaten to undermine the protection of open spaces in the outer areas of the city region.

In Copenhagen, where a regional plan for localisation of office buildings near stations has existed since 1989, a study from 2002 (Hartoft-Nielsen 2002), showed that during the first decade of the policy's existence, only half of the new built office space was actually located within the designated areas. The most probable main reason was that urban space already allocated for office purposes was still available, which is well in line with the findings of Carruthers (2002) that spatial policies become more efficient with time. The Fingerplan and the "offices-near-stations-principle" have had a hard time being accepted among municipalities which have their main development areas far from stations.

This illustrates also that commitment to strategic goals is important, especially when modern, governance based, ways of policymaking is used. And such modern ways of planning also may improve commitment, although sometimes to the cost of a vey stringent plan (e.g. Healy 2006). The possible importance of clear visions and Lietbild- strategies have been mentioned already, as well as the importance of anchoring regional strategies with municipal politicians and administrators, and with developers and citizens.

Conclusions

The conclusions here are about what can be done and what is done in a number of cities in Europe, China and the USA to handle the challenge of guiding and direction urban development in peri-urban areas, in order to enhance the urban structure and protect cultural landscapes and nature in large urban regions. The conclusions are not about the barriers for implementation, economic costs or inflexibility of too strict planning. In all case studies there is a will to ensure a positive urban development. Some of the measures work, others do not, but we have not had the possibility to make thorough efficiency studies. Thus, the conclusions here build on the case studies, supported by relevant literature.

An active national planning level is of importance to set the goals and framework for local planning. The national level may work spatially specific or goal orientated, or a bit of each. Both sorts seem to work. The cases show a tendency that spatially specific documents may be less precise in the wording of the goals, while those which remain on the "goal level" are more precise in their directions to regions and municipalities. In only one of the cases (Slovenia) the state level prepared plans used for direct administration, but some countries seem to think that some state control is necessary in the shape of approval of regional and/or municipal plans.

A clear vision or strategy is useful in shaping and propagating a common urban identity to be proud of and to fill in with local decisions.
Iconic, very simple visions are easy to grasp and agree upon, but can be criticized for being too simple and not taking local circumstances (place) into account. More complex "analytical" strategies are good tools for prioritising and administration, but will probably not support a broad ownership among citizens.
Any vision or strategy must be supported by land use planning, incentives and public investments, and it may – on the other hand – give a commonly accepted guideline for the use of such incentives and investments.

Regional bodies are necessary in order to cope with regional problems. They need to have clear tasks and responsibilities, and enjoy a broad acceptance among municipalities. This can be obtained either by top-down legal strength or by participation, such as regions being formed as co-operations between municipalities.

European rural policies can be used in a way that is tailored for the special problems of peri-urban areas – to strengthen agriculture and nature. This is shown in Manchester and in the Hague, where CAP incentives are applied at local level. In the Hague region local funding is also put into specific measures to enhance the conditions for special forms of agriculture, suited for the peri-urban areas or urban fringes.

Urban attractivity policies, including mobility (public transport etc), may not pertain directly to peri-urban areas, but are nevertheless an important tool in the box to make existing cities more attractive for housing, and thus lessen the pressure on the peri-urban areas from urbanisation. Such measures may be considered more or less main stream, but still need to be promoted. The city of Seattle includes suburban centres in this policy, which may have a potential for the future also in Europe.

Integration of policies is needed. Integrate rural and urban policies by applying existing and new rural and urban policies in relation to a regional strategy lends further purpose to these policies, and makes a regional strategy useful. The integration of economic incentives with spatial planning has not seen its full potential yet.

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Appendix

The appendix contains an inventory of the experiences/evidence revealed by the case studies by main topic of relevance to growth management:

Spatial Strategies	Spatial Planning	Rural Policies	Economic Incentives	Urban Attraction	Infrastructures	Governance

The case studies are the PLUREL case studies supplemented with evidence from Copenhagen and Portland/Seattle:

Case-study: Copenhagen
Case-study: Hangzhou
Case-study: Koper
Case-study: Leipzig
Case-study: Manchester
Case-study: Montpellier
Case-study: Portland + Seattle
Case-study: The Hague Region/Haaglanden
Case-study: Warsaw

The following pages contain one summary table per case study as listed above.

Case-study: Copenhagen

Spatial Strategies	Spatial Planning	Rural Policies	Economic Incentives	Urban Attraction	Infrastructures	Governance
Integration of urban and transportation systems based on the 'Finger plan' (and location to avoid congestion – and promote sustainable transportation). Maintain and develop recreational landscapes. Separation between urban and rural areas and avoidance of urban sprawl. In the capital area: keeping the vedges green. Leverage of the metropolitan centre for agglomeration effects/ competitiveness - with high grade	Planning hierarchy: State recommends Specific directive are developed for the Copenhagen region Municipal plans and local plans are developed within state recommendations and directive for the region. The Copenhagen region is divided into some 34 municipalities. The Copenhagen region is divided into 4 sub sectors: the Central urban area; urban fingers; green vedges; and the remaining region. Urban development should not take place in the green vedges, and development in the remaining region should be limited to	Rural policies is one of the working areas of the new regional bodies created as part of the planning reform of 01.01.2007. Two such regions are part of the capital/Copenhagen area. In the most central region no 'rural areas' exist according to the regional strategy. The other region – only partly within the capital area as covered by the directives of the Ministry of the environment - has more emphasis on rural areas and aim to support these areas through the development of nature and areas for recreation – which may again support tourism and settlement.	The main tax base in Denmark is personal income. Property tax es play a minor role – but are claimed by the municipalities. The level of taxation vary but the regional centre (Municipality of Copenhagen) are among the most expensive in tax rates. Tax revenues are redistributed between the Danish municipalities, based on the population composition, to allow all municipalities to offer the same basic level of service irrespective of their location and population. For new urban	To increase the attractiveness and/or competitiveness of the regional centre has been one of the aims of the infrastructure projects and urban development projects initiated in the 1990´s (Harbour of Copenhagen and Ørestad united in one Urban Development cooperation: 'Havn og by'). State policies and state institutions have generally been in favour of upgrading of centrally located institutions and facilities. Most municipalities also works with urban	In the early nineties attention focussed on the competitiveness of the region. This two significant infrastructure projects: a motorway/bridge connecting central Copenhagen to Malmö in Sweden; & a 'Metro' (subway) for central Copenhagen, including urban development of a new central green field site now serviced by the 'Metro'. Expansion of the metro system is now (2010) ongoing. Most of the regions motorway network is from the 1970s. Capacity of existing motorways have been expanded (Helsingør, Ring 3, Køge bugt) and new motorways have been discussed (Frederikssund). The fingerplan is mainly based on a 'commuter	For the capital area there is a specific mandate for the Ministry of the Environment – in the law of planning – to coordinate the spatial development plans in the region. The formal role is supported by control of municipal planning documents as well as developments in second home statuses of properties in the region. Generally the planning system operates within rules for 'hearing' of citizens, neighbours and so forth. The 'Ring 3' cooperation exemplifies a cooperation between 7 municipalities on

public transportation, and urban development of harbour front + green field site with high accessibility (projects). Other strategies are less spatial: supply of land for residential and business development, and renewal of existing urban areas.	extensions for 'local' needs. The general divisions of the region are supplemented with rules for the location of intensive land uses and retail. Intensive land uses are to be located in proximity (<1000 m) to railway stations; and central/accessible areas are delineated in all municipalities for the location of retail space. The redevelopment of the harbour areas and the centrally located green field "Ørestaden" has been promoted as projects with participation of the state and the municipalities in the area (including designated laws to create the mandate).		areas the municipalities will provide the required services (sewer, water, electricity) and charge the costs to developer/buyer. No designated economic incentives have been created to affect location patterns or spatial development. Land and property is a minor part of the tax base - and the taxes are generally redistributed to reduce the effects of population density. 'Land value capture' (based on ownership and sale) has been used to finance the Metro system.	design and services to provide attractive urban areas for residents and employees.	rail' (S-tog) system as backbone infrastructure. The last line/finger opening was in the 1980´s but large investments were made through the 1990s in new rolling stock and higher frequencies. Later efforts have focussed on flexibility In the centre where a new circumferential route and hub can also allow for better servicing of cross commuting. The most direct effects of infrastructures on spatial development in the Copenhagen region are the many brown- and greenfield sites that have and are undergoing 'intensive' urban development. Motorways tend to be a location factor for certain businesses as well as for household. However, the development is generally constrained by existing land uses as well as by planning.	the development of a light project along the circumferential ring 3 motorway. The new national park to the north of Copenhagen (Kongernes Nordsjælland) exemplifies a new type of designation that has required agreement between municipalities and consultation with citizens before a final delineation and agreement on the national was reached.

Case-study: Hangzhou

Spatial Strategies	Spatial Planning	Rural Policies	Economic Incentives	Urban Attraction	Infrastructures	Governance
Eleventh five-year plan for Hangzhou's economic and social development: - construct a network metropolis, and make overall plans for a coordinated development of the region - to develop a circular economy (revenues generated in the city remain in the city)and construct an ecological city - to protect the famous historical city and cultural heritage - accelerate the development	Municipal Master Plan: strategic urban plan: - optimize the allocation of resources - coordinate arrangements for development of regional infrastructure, and urban and rural public facilities - promote an unified action system for urban and rural development - support and coordinate sustainable development (p.31) --- Comprehensive Land Use Plan: - protect	Diversification of farming; e.g. promotion of fruit tree planting and horticultural crops Village greening: promote recreation and tourism in rural settlements close to urban areas (p.33) ---		Conservation and controlled growth: Zhuantang area. Combination of of moderate urban development with tourism and protection of the cultural and ecological heritage (p46) --- Green space, landscape renovation, development of up-market residential areas, improvement the image and creation of a specific identity: Xixi wetland area (p46) --- Large scale development with effective transport network and high green space ration: Binjiang		City Chinese Communist Party Committee: core of the city´s power structure: actors for final decision (i.e. important urban planning and urban construction projects) (p.26) --- City People´s Government: directly responsible for decision making and implementation of urban planning (p.26) --- City People´s Congress: prepare local regulatory documents; review and approve plans and budgets; discusses and approves urban planning; supervises and reviews urban planning and urban construction projects

- promote all round social progress (p.30) --- Leitbild Municipal Master Plan: "One centre, two rings; three axes, two vinculums; one circle, some points" (municipal plan): to achieve a more balanced distribution of population and economic development (concentration of growth in peri-urban areas, construction of transport and telecommunication infrastructure networks, protect water resources) (p.31) --- Leitbild Strategic Plan for Hangzhou City: "One main city, three secondary towns; double hearts and two axes, six settlement clusters, and six ecological belts": application of the strategy: "South	agricultural land and ecologically valuable areas - promote intensive urban land-use (p.32) --- Sectoral plans for the protection of natural resources at the municipal level: examples: - Ecological City Construction Plan and Ecological Forest Master Plan: promote economic growth based on improved environmental quality" - Ecological Forest Master Plan: protection of natural resources (p.33) --- Strategic Plan of			district (p46) ---		(p.27) --- The State and the Municipality are the strong actors in planning; role of other actors such as private investors, citizen and farmers is still limited but increasing (p.41)

develops, north adjusts, east enlarge, west optimizes" (p.35)	Hangzhou City: programmatic plan for urban development: make Hangzhou unique as an international tourist town, a technology-intensive industrial centre at national level as well as an ecological city. (p.35) --- Hangzhou City Comprehensive Plan: land use functions within the city boundaries; their goals and their projected size. It confirms the model "One main city, three vice towns, six settlement clusters". It also determines the future size of the city population and the amount of land for urban construction" (p.36) --- District Planning: further control and definition of use of land (p. 36) --- Regulatory Plan: very					

	detailed plan to effectively control the land use planning and its management. (p.39)					

Case-study: Koper

Spatial Strategies	Spatial Planning	Rural Policies	Economic Incentives	Urban Attraction	Infrastructures	Governance
Draft new strategic spatial plan not yet officially accepted (p53) --- Concentric semi-circular belts with hierarchical division: 1. central zone: keep and develop only city-forming activities and activities connected or depending on the sea in the coastal belt 2. peri-urban areas: to move and concentrate other economic activities and	New spatial planning act 2007: - national level: national strategic spatial plan - municipal level: 1. municipal spatial plan: strategic and implementing spatial document; basis for building permissions; 2. possibility to have an independent document: municipal strategic spatial plan; 3. possibilities to have a detailed municipal spatial plan (p36) ---	Renovation and replacement of existing buildings; concentration of settlements within existing areas (p55) --- Protection of the best agricultural land: the higher quality, the more strict criteria. Need to take into consideration: existing agricultural structures, field roads network, spatial directions, natural corridors, landscape patterns (p81-82) --- Rural development plan 2007-13: - maintaining the settlement and revitalisation of the villages - maintaining and renovating	Rural development plan 2007-13: - keeping the agricultural production; development of the ecological agricultural production; assurance of appropriate incomes for farmers - development of the rural tourism - development of supplementing enterprises and handcraft activities on the farms (p83)	Only minor interventions: renovation and reconstruction of existing buildings (p54) --- Green system of settlements in peri-urban areas. Green areas conservation and recreational areas management. Green structures should be used as protection against fusion of settlement.	Renovation of common infrastructures in rural areas (p83)	List of stakeholders for each of the three defined strategies within the report. For " land pressure due to housing": 14 stakeholders (p57) For "agriculture under pressure": 9 stakeholders (p69) For "high value nature at risk": 8 stakeholders (p78) --- Example of the strategy "high value nature at risk": - municipality of Koper - environmental associations and groups - ministry of the environment and spatial planning - ministry of agriculture, forestry and food - institute for nature

settlements; safeguarding high valuable natural and agricultural areas 3. rural hinterland: main place for agricultural activities, forests; development of services activities and of settlements, adjusted to rural characteristics and specificities (p53-54) --- In 1: limited interventions: renovating and restructuring existing buildings In 2: delineate settlement areas; define and develop areas for business,	- Former 1: spatial order of the municipality' Former 2: strategy of spatial development of the municipality Former 3: municipal location plan (p37) --- - New spatial planning act defines an inter-municipal plan: regional spatial plan prepared by the involved municipalities (p37) --- - Municipality spatial development strategy: long-term goals of spatial development: guideline for	cultural heritage and its inclusion to the market offer - management of the village centres, renovation of the common infrastructures and buildings (p83)				protection - forestry institute - university of Ljubljana and university of Primorska (p78)

industrial and craft activities, prevention of dispersed construction In 3: renovation and replacement of existing buildings; concentration of development within existing settlement areas (p54) --- Hierarchy of urban centres: - main urban centres - important local centres - less important local centres (p55)	sustainable development, location of activities, settlement development, infrastructure, landscape (p37) --- Mandatory preparation of environmental vulnerability studies and environmental impact assessment (p38)					

Case-study: Leipzig

Spatial Strategies	Spatial Planning	Rural Policies	Economic Incentives	Urban Attraction	Infrastructures	Governance
Indirectly found through the different projects: - improvement of urban life conditions - counteract urban sprawl and suburbanisation - improvement of recreational functions --- Strategies in the Landesentwicklungsplan Sachsen: - overcome declining population - understand and form shrinkage as a process of quality change - strengthen central places - improve traffic infrastructure - promote climate protection and preventive flood	Municipal land-use plan (Bauleitplanung): - preparatory land-use plan (FNP) defines land-use - development plan (BPlan) is legally binding and it determines land uses of plots - possibility for urban renewal plans (p23) --- Regionalplan WestSachsen: improvement of quality of life of residents by increasing accessibility and attractiveness of the Parthe Floodplain (p41)	Inter-municipal cooperation Parthenaue: protection of the floodplain and development of recreational uses (p43)		Urban II Leipzig West: renovating building and creating green areas; create jobs (p36) --- Green Ring (p36-37) --- Re Urban Mobil: development of housing in the core city; focus in two worker´housing areas (p37) --- Leipziger Sebstnutzer Program: creation of property in the inner city for long-term settlements (p38) --- LHASA: examination of post housing landscapes in Grünau for improving the life quality (p39) --- Social City Programme: improve living conditions and economic background in the East	Urban II Leipzig West: development of environmental friendly transport systems: mainly foot and cycle paths (p36) --- Landesentwicklungsplan Sachsen: improve the traffic infrastructure standards and integration into the transeuropean network (p41)	*No clear list of stakeholders.* Mention some of them: - public sector: local and regional authorities, public services, public landholders - private sector: farmers, landowners, developers, operators - third sector: community groups, conservation groups, social enterprise groups,

protection - reduce land consumption by concentrating housing in central places - create stable partnerships between urban and rural areas - support regional initiatives (p40-41)				of Leipzig ; example: training course (p39) --- Wasserstadt Leipzig: improve quality of life near urban water bodies (p40) --- Landesentwicklungsplan Sachsen:: overcome declining population; reduce land consumption by concentration of housing in central places (p41) --- STEPS: enhance economic development in the inner city by focusing on retail trade (p42)		social landlords, etc... (p47-48)

Case-study: Manchester

Spatial Strategies	Spatial Planning	Rural Policies	Economic Incentives	Urban Attraction	Infrastructures	Governance
Green structure: upcoming strategy: probably a document identifying priorities areas for investments and enabling joint programs (p39-40) --- Regional spatial strategy: - green belt areas: totally protected from new developments (in principle); location of many infrastructures such as motorways, power station and hospital) - areas of landscape value: less legal protection than green areas - green belt areas around urban areas: could be	National level: serie of planning policy statement: no official national planning document Regional level: regional spatial strategy Sub-regional: multi-area agreement (example: greater manchester) Local level: local development framework; community strategy; local strategic partnership; local area agreement (p50) --- Manchester city region development program (2006): to establish one of Europe´s first city region (p38)	Rural strategy: 1 of the 3 key priorities: - enhancing value of the countryside: protecting the natural environment for this and the future generations (p35) --- Regional rural policy: 3 drivers: - need to improve productivity - need to grow size capability of workforce - need to create and maintain condition for sustainable growth (p36-37) ---	Rural strategy: 2 of the 3 key priorities: - social and economic regeneration: supporting enterprise across rural England (but targeting greater resources at areas of greater needs) - social justice to all: tackling social exclusion; providing fair access to services and	Concentration of new developments in urban areas: 80% in the Greater Manchester area (p50)	New motorways: - motorway corridor of the m60 orbital link - A6 bypass, part of the national trunk road program (p52)	Public bodies dealing with peri-urban issues: - National: natural England, former countryside agency - Regional: north west development agency, NW regional assembly,, government office for the NW - Sub-regional: association of Greater Manchester authorities (10 municipalities including Manchester), Manchester city region

potentially permitted - concentration of new developments in urban areas - strategic sites for employment and industries (p50) --- Peri-urban policies: - urban fringe planning policy and management experiments - urban fringe partnerships and action bodies - initiatives such as multi-functional community forests, eco-industrial parks, upland management schemes, inter-regional cycle routes (p56)	--- Manchester city region sub-regional statement (2005): focus on economic, housing and transport. Also on the quality of the environment (p39) --- Regional development programme for England implementation plan 2007-13: first rural plan for greater Manchester to support rural economic development (p39)	--- - axis 3: quality of life in rural areas (basic services; conservation and upgrading of rural heritage; area studies, information, training, indicators, leaders, promotional events, partnerships) and diversification of the rural economy (into non-agricultural activity; micro-business creation and development; encouragement of tourism activities) (p39)	opportunities for all rural people (p35) --- Strategy for sustainable farming and food (2002): promote a competitive and efficient farming and food sector in rural areas (p36) --- Regional development plan for England 2007-13: - axis 1: improve the competitiveness of the agricultural and forestry sectors (training; improve economic value of forest; add value to agriculture forest production; cooperation on the development of new production, processes and technologies (p39)			(GM plus 5 rural areas) (p35-37)

Case-study: Montpellier (MA = Montpellier Agglomeration)

Spatial Strategies	Spatial Planning	Rural Policies	Economic Incentives	Urban Attraction	Infrastructures	Governance
Key issues: - land pressure due to housing - agriculture under pressure - tourism integration - traffic pressure - water management and flood prevention - high value nature at risk (p°28) --- MA Strategy: overall goals/ - responding to and managing population growth - supporting economic growth (sustainable development) - saving land and controlling property speculation) (p°30)	PADD; PLU; PLH; PDU; SCoT (p°27) --- SCoT objectives: - assure diversity of territorial use - facilitate integration of urban population - enhance patrimony value - be watchful to a thrifty use of resources - assure public health - organise	Preserving agricultural land and natural areas Flood prevention (p°30) --- Extension of villages offering spaces for urbanization Develop landscape dynamics to maintain and reinforce life setting quality Landscape rehabilitation (ex: agro-park: agriculture, leisure activities; etc.) (p°69)	Support to peri-urban farming (p°30) --- Creation of the MA patrimony and vineyard road and the annual “foire aux vins” Creation of “pole d excellence viticole” with 8 innovative firms in the wine sector 200 000€ support to build a farming hamlet Support to build a new wine cooperative (p°30)	High density housing --- Priority on soft circulation at the local and agglomeration scales Streetcar implies: - high density - few car parking possibilities - some exchanges poles in the peri urban areas (p°51) ---	Improve urban transport network Flood prevention (P°30) --- Hierarchy of roads: 1. <30km/h: confort and safety 2. <50km/h: public transport; confort and safety for pedestrians ; soft car traffic 3. 50-70: fluid and safe circulation for all 4. 70-90: ring roads.; fluid and safe public transport	MA: since 2001 31 municipalities since 2005 (p°26) --- Ex: Agriculture under pressure: - local governments - agriculture firms / farmers - jardins de Villeneuve: social integration association ; farmers association - horses keepers (p°29)

--- Urban Planning Principles: - balanced development between urban territories and territories of rehabilitation/extension; and between urban and rural/natural areas - urban diversity and social mix of housing - thrifty land/space use (p°41) --- Focus on site qualities of landscapes: protection and reinforcement: basis for territorial planning “Sight inversion”: consideration of green space as great city’s quality (p°47)	territorial management - favour local democracy (p°41) --- SCoT: 3 axes: - natural city - shared city - thrifty city			Distinction of different type og settlement areas: 3 categories: A: + 50 housings/ha: compact and dense B: 30 to 50: small buildings; grouped houses C: 20 to 30: little compact isolated houses (p°63-65) --- Urban rehabilitation with public transport : creation of new polarities; Ex: Sea Road (P°76)	5. 110-130: fluid and safe circulation for car and trucks (P°55-62) --- Sea Road: new road and tram infrastructure between the city centre of Montpellier and the coast (p76)	

Case-study: Portland (P) + Seattle (S) (Source: Fertner, C. 2010, "Learning from urban growth management in the Pacific Northwest. A Danish perspective) + *Notes from the study trip*

Spatial Strategies	Spatial Planning	Rural Policies	Economic Incentives	Urban Attraction	Infrastructures	Governance
Growth Strategies: - Puget Sound Regional Council: determines the broad settlement structure of the region (Vision 2040) - Seattle: Urban Villages corresponding to specific sub-areas seen as urban centres and villages. Polycentric development. (p.7) --- - Portland: Update of the 2040 Growth concept including *(P) Urban and Rural reserves (in UGB): areas fro long-term (40-50 years) reserve for development or preservation (p.9)*	Urban containment boundaries (UCB): tool of urban growth management policies: line on a map based on an explicit policy to prevent the extension ok key public facilities (Nelson et al., 2007) (p.5) --- In Washington State: UCB constituted by the determination of an Urban Growth Area. In Seattle Region: UCB constituted by the Puget Sound Regional Council. The growth strategy also delineates natural resource land (agriculture,	Zoning and parcellation for preserving rural land in both cases Buying land to preserve it, both King County and Metro Portland (p.7) --- *(P) 5 acres or smaller are not allowed anymore, some pre-existing to UGB (p.9)* --- *(P) Requirements for agricultural land use:* - *minimum yearly income from farm of US$80,000* - *minimum size: 80 acres (p.9)* --- *(S) Progressive development code to*	Transferable development rights (TDR): instrument to shift development pressures. Market based programmes allowing to separate and trade the right to develop a certain piece of land in a free-market system of willing sellers and buyers. Example in Portland: few TDRs. For specific areas (i.e part of a major greenway) (p.6)	(S) Floor-Area-Ratio-Bonus-system in Seattle to ensure quality of building and social infrastructure in exchange for additional building height (p.7) --- *(S) New building codes to increase density of backyard cottages, cottages houses with common outdoor space, schools to be integrated in buildings, and commercials facilities (e.g. less parking requirements) (p.13)* --- *(S) Seattle Design Review: influence*	Coordination of federal infrastructure funds by region Metropolitan Planning Organization (MPO) In Portland: Metro = MPO In Seattle: PSRC = MPO (paper p.8) Both are issuing regional transportation plans	Puget Sound Regional Council: Assembly of representatives from the cities and counties and executive board Metro Portland: Regional council, 7 elected councillors; self-financed by fees from solid waste disposal and bonds confirmed by the voters for specific purposes Bill 100 in Oregon (1973) Growth Management Act in Washington State (1990) set the framework for urban growth management by introducing a range of state goals related to spatial development

---------- Long-term visions: Portland Metro: Update of the "2040 Growth concept" from 1995 planned for spring 2010. Vision of 40-50 years to determine reserves for urban and rural areas. Includes a ring of about 10km around the UGB (p.6) ---------- Long-term development strategies: 2040 Growth Concept for Portland; Vision 2040 for Seattle/Puget Region (p.5)	forest): areas protected from urban growth (p.5) ---------- Oregon: all cities have to implement Urban Growth Boundaries (p.5) ---------- *(P) Local comprehensive plans: required to be consistent with Metro´s regional planning and with the State planning goals (p.7* ---------- *(P) Urban Growth Boundary: revised by Metro every 7 years to plan for the next 20 years (p.8)* ---------- *(S) Puget Sound Regional Council developed the Vision 2020 in the 1990s to enforce regional centres to accommodate growth; recently published Vision 2040 (p.12)*	*get developers out of rural areas (p.13)*		*aesthetics of density (p.14)* ---------- *(S) Urban renewal programme. Example of South Lake Union neighbourhood: regional growth centre in Seattle's comprehensive plan since 2004)* ---------- *(S) Integration of non-commercial activities in shopping malls*		

	---------- (S) Cities: preparation of zoning plans; counties prepare for unincorporated land and rural areas (p.12)					

Case-study: The Hague Region (THR)

Spatial Strategies	Spatial Planning	Rural Policies	Economic Incentives	Urban Attraction	Infrastructures	Governance
Strategies to strengthen agricultural land use in the urban fringe of the region: (p.78) - stimulating intensification of agricultural land use - facilitating increased farm sizes - multipurpose farming - ecological and water related services - promoting regional products / branding - land purchase and land banking - zoning	Regional structure plan 2020 (p°43) --- Long-term strategic plan for green areas in THR, 2007 (p°44) --- Regional structure plan 2020: - profiling and branding: good climate for settling of companies, institutes and highly educated expats - reduce energy consumption; increase use of sustainable energy sources - removing, retaining,	Green and blue network: create connections between areas in four kinds of areas: - original natural areas - recreational areas bordering the cities - green corridors - open agricultural areas for cattle breeding (p°44) --- The Hague Region Regional Structure Plan 2020 (p.43): - goal: conserve and develop open	Green/blue services: provision of public efforts aimed at the achievement of public demands about nature, landscape, water management and recreational use (accessibility); cost-recovering compensation Serve ecological goals (landscape, biodiversity, water quality), social goals	Redevelopment of the Westlandse Zoom area as an attractive housing area with high environmental quality (p°103) --- At least 50% of new housing needs inside the existing urban fabric (THR). 80% for the City of the Hague (p°104)	Green ring: instrument to strengthen the connection between urban and rural areas, mainly by means of circuits for cyclists (p°91) --- Plan for investing to public transport development (p.104) for high speed and comfortable connections to other European regions and airports in Amsterdam and Rotterdam. Plan for enhancing accessibility for	The report presents the governance for two of the three spatial strategies. Example of the strategies to strengthen agricultural land use in the urban fringe (p.73); it that case actors correspond to various government tiers, farmers (landowners or tenants), farmers' and horticulturalists' organization, agri-environmental associations, the food sector,

---------- Strategies to develop commitment: combining culture and landscape - Green Rings: concrete developments such as cycling rings, walk or water recreation routes - The Hague School Outdoors: connection between the physical and the mental picture of the urban and rural landscapes. Increase the identity of the territory (p°97) ----------	storing (flood) - 80% of construction within zones intended for building - Differentiation of housing stock in neighbourhoods - Stimulate use of public transport; stimulate use of bicycle; influence mobility behaviour; stimulate cleaner vehicles; improve accessibility by car - Quality of public space - Enable farmers to continue to manage rural areas; develop	green space - strategy: enable farmers to continue to manage rural areas; develop park landscapes in urban fringe; increase support for conservation by recreation; Strategies, discourses and coalitions (p.78): - Stimulating intensification of agricultural land use - Facilitating increased farm sizes (often in combination with the previous) - Multipurpose farming	(recreation) and economic goals (economically viable farms) (p°80) ----------		private cars by means of an International Ring road (p.104) Public transport axes in new concentrated growth area for the new International Zone (p.104)	environmental groups, recreationists, civil society groups, private land owners or land users; and other landscape managers (nature conservation societies, recreation boards).

Strategies to raise political support for the development of green open space, balancing international competitiveness with local recreational interests: - linking green open space to a strategic issue of major economic importance for the region - targeting citizens as both users and advocates of the urban fringe - spatial concepts of concentrated growth, green structure and	park landscape in urban fringe; increase support for conservation by recreation (p°43)	- Ecological and water-related (green and blue) services - Promoting regional products/branding - Zoning Green and Blue services (p.80): agri-environmental policy development ?				

public transport axes (p°104)						

Case-study: Warsaw (WMA: Warsaw Metropolitan Area)

Spatial Strategies	Spatial Planning	Rural Policies	Economic Incentives	Urban Attraction	Infrastructures	Governance
Spatial Act and Land Management Act (2003): basic principles - spatial cohesion - sustainable developmen t (p°40)	National: Concept of National Spatial Development: instrument to guide structural changes in the country" Objectives: - establish principle of spatial systems of settlement and infrastructure development - balance development of regions - establish the basis for sectoral and regional public purpose programme (P°41) ---------- Regional: - Strategy for Regional					Possibilities for municipalities to cooperate; but no tradition; no good practice examples (p°48)

	Development - Regional Spatial Development Plan - Spatial Plan for Metropolitan areas (p°42) ---------- Sub-regional: no task to prepare spatial plans (p°42) ---------- Local: Study of the conditions and directions for the spatial development: objectives: - Identifying municipality's spatial development conditions and directions - Identifying specific environmental, cultural, social, economic and infrastructure circumstance					

	that have impact on the municipal development (p°43) Land use development plan: comprehensive, long-term development policy (p°43) No hierarchy/subordination (p°47) ---------- Lack of culture of planning (p°48)					