PLUREL

PLUREL project

All modules

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

Publishable final activity report

Project duration:

01.01.2007 – 31.03.2011

Project coordinator:

Kjell Nilsson; University of Copenhagen; Danish Centre for Forest, Landscape and Planning

Date of preparation: 13 May 2011

SIXTH FRAMEWORK PROGRAMME

Contents

Executive summary

PLUREL: Peri-urban Land Use Relationships – Strategies and Sustainability Assessment Tools for Urban-Rural Linkages

PLUREL is an Integrated Project funded within the 6th Research Framework Programme of the European Union. During its lifetime, 36 partners from 14 European countries and China have participated in the project. It has been coordinated by Dr. Kjell Nilsson, Danish Centre for Forest, Landscape and Planning; University of Copenhagen. The project started in 2007 and terminated in March 2011.

Project objectives

The PLUREL project aimed to achieve a deeper understanding of the changing relationships between urban and rural land use with an emphasis on the most dynamic portion, that of peri-urban areas. It developed methods and tools to assess the environmental, social and economic impacts of land use changes. Potential strategies and good practice examples were identified in order to promote the sustainable development of land use systems in Rural-Urban Regions, especially the peri-urban areas.
The project's objectives were:

1. To develop land use scenarios for Rural-Urban Regions (RURs) in Europe, improving the understanding of the economic, social and environmental issues lying behind land use dynamics in the urban, peri-urban and rural RUR sub-regions.
2. To analyse and model the relationships between land use changes and the provision of resources and functions (e.g. residential, transport, environmental and recreational services) of RURs at a European and a case study level.
3. To analyse the implications of planning policies and strategies as well as governance structures on the sustainability of land use, particularly in peri-urban areas by exploring selected case study regions in detail and in collaboration with local stakeholders. This allows identifying strategies for sustainable peri/urban development.
4. To assess the environmental, social and economic impacts of land use changes induced both by global and regional driving forces and by regional development strategies using a Multi Criteria Assessment approach.
5. To enhance learning, cooperation and communication between policy makers, stakeholders, planners and researchers.

Project structure

The PLUREL project was structured into six interrelated modules, with each 3-5 workpackages:

Module 1 described the underlying driving forces of, for example, the urbanisation process, as well as other relationships between urban and rural areas. Examples of such driving forces are economic and technological development, demographic changes, and climate change.

Module 2 translated these general trends into demands on land use, resources and public participation in the interface between rural, peri-urban and urban areas; looking at both a generalized regional level and on a pan-European scale. This included analysis of different strategies for urban growth (or shrinkage), and patterns (compact, sprawling, site-specific and site-adequate).

Module 3 studied the regional strategies to steer developments in the urban fringe, against the setting of these pressures or demands on a local, urban regional level in the

case study regions. Alternative scenarios for urban development were developed in a participative process with key stakeholders.
Module 4 had emphasis on interactive impact assessment of different regional strategies in case study regions, with economic, social and environmental methods and indicators.

Module 5 synthesised the results into knowledge resources and tools for planners and policy makers at regional, national and EU-level.

Module 6 coordinated the interdisciplinary and trans-sectoral work, provided effective financial management, quality control and organisation of dissemination activities.

Table 1 Overview of modules.

Module	Title	Module leader
Module 1	Driving forces and global trends	Vegard Skirbekk, International Institute for Applied Systems Analysis (IIASA) & Mark Rounsevell, University of Edinburgh
Module 2	Land use relationships in rural-urban regions	Armin Werner/Annette Piorr, Leibniz-Zentrum für Agrarlandschaftsforschung (ZALF)
Module 3	Governance and strategic planning scenarios (case studies)	Carmen Aalbers, Alterra B.V. Green World Research
Module 4	Sustainability Impact Assessment	Dagmar Haase, Helmholtz Zentrum für Umweltforschung GmbH (UFZ)
Module 5	Instruments and tools	Stephan Pauleit, University of Copenhagen/Armin Werner, Leibniz-Zentrum für Agrarlandschaftsforschung (ZALF)
Module 6	Scientific management and coordination	Thomas Sick Nielsen, University of Copenhagen

The work in PLUREL was organised at two distinct levels ('strands') that cover different aspects of analysis, information provision and interaction with stakeholders or end users of the PLUREL products (see figure 1):

Strand a) Pan-European level
Strand b) Case study level (local level)

PLUREL's research at the European level was conducted to allow potential end users at European and national levels to assess the consequences of global and European drivers on the sustainability of land use in RURs. It provided descriptions and spatially explicit maps of future trends, and supported the understanding of the relationships between such trends and the provision of different land use functions in urban-peri-urban and rural sub-regions and related impacts on the sustainability of the RUR. The use of typologies allowed for cross regional comparisons at NUTS-X scale, and for determining disparities, e.g. between RUR types (Module 1 and 2).

PLUREL's research on case study level focused on peri-urbanisation with specific cases and was complementary to the European level approach but at a spatially more detailed level. Case study research aimed to identify suitable strategies for developing sustainable land use relationships in peri-urban areas. This needed information on the more general conditions for development in Europe and for the region. Therefore the work comprises two distinct but interrelated approaches: Analysis and assessment of peri-urban governance and strategies for land use development in peri-urban areas (Module 3); and Modelling of local land use change scenarios, and assessment of its sustainability impacts (Module 2 and 4).

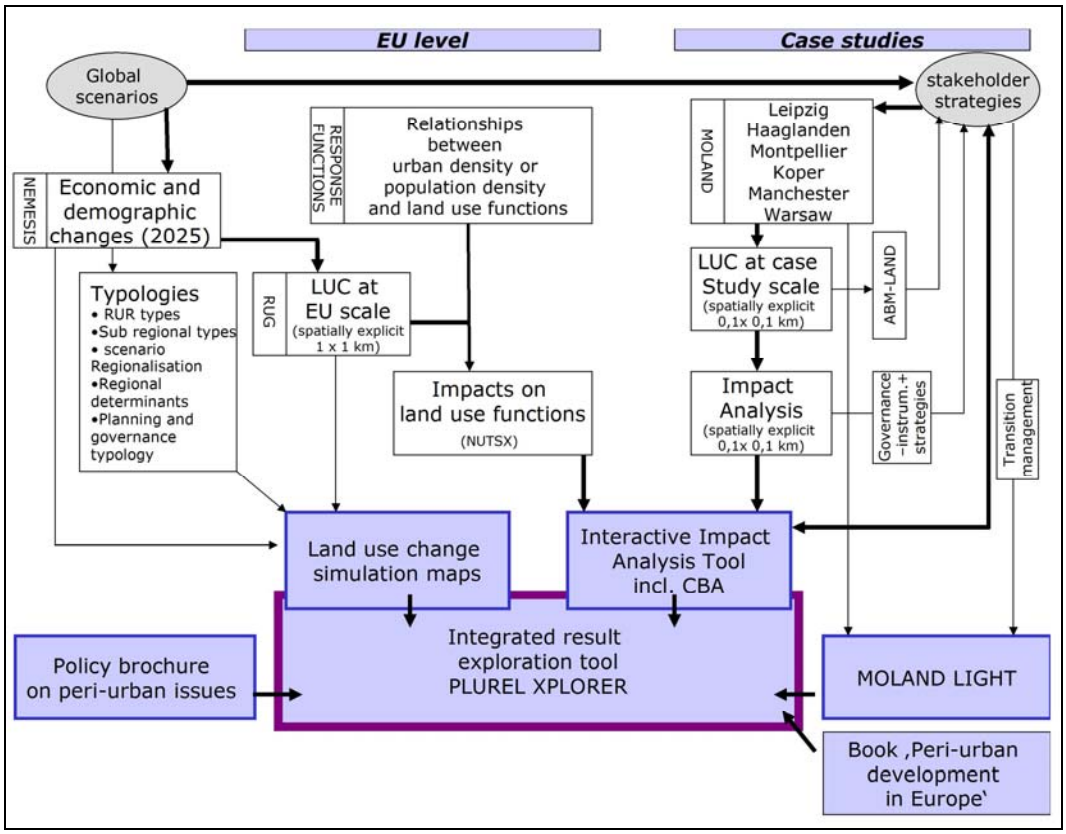


Figure 1. Project workflow. The project's tasks and results are integrated in two complementary strands: (i) Pan-European level (left) and (ii) Case study level (right). The blue boxes are the end-products assembled in Module 5.

Case studies

Six European case studies were chosen from the beginning of the PLUREL project to explore in depth the land use relationships between rural and urban areas: Warsaw (PL), Leipzig (DE), The Hague Region (NL), Manchester (UK), Montpellier (FR), and Koper (SI). A Chinese reference study explored the relevance of the results to the very rapidly urbanising areas in Asia and to get an external perspective on the spatio-temporal developments. Hangzhou, a rapidly growing rural – urban region of 6.6 million inhabitants was chosen for this.

The case studies reflect the variability of geographical, economic and social conditions prevailing in Europe but they are also characterised by different cultures of governance expressed by regionally specific governance and spatial planning strategies. Population trends differ remarkably between the case study regions, and range from growing areas (poly-centric The Hague Region, Montpellier, mono-centric Warsaw) to a region with significant and ongoing shrinkage in terms of population decline and land use perforation (Leipzig). These general trends were translated in different ways into rural-urban development patterns within the regions. To give one illustrative example, population decline in Leipzig is coupled with continuing suburbanisation.

Challenges of urbanization and peri-urban development

Urbanisation has arguably been the most significant process of land use change in Europe since the Second World War. Over 70% of Europe's population now lives in urban areas, which in turn have grown in area by almost 80% over the last fifty years (EEA 2006). The most obvious signs of this shift towards urbanisation are urban sprawl and the emergence of peri-urban areas, characterised by scattered built-up residential, industrial or

commercial areas and dense transport networks, but also by the establishment in some places of green belts, recreational facilities, urban woodlands and golf courses, the conversion of farmstead complexes into housing and changes from conventional agricultural land uses into hobby farms and rural areas within easy reach of the city.

The different spatial patterns, cultures, planning policies, and various driving forces of urban growth or decline, result in changes of land use and functional linkages between urban and rural areas. The changing nature of the relationships between rural and urban land uses has deep consequences both for people's quality of life, for the environment and ecosystem services. These changes are most dynamic, intense and visible in the peri-urban zones which are therefore the main object of study. To understand the processes that drive land use changes, it is necessary to analyse the causes and effects, to improve knowledge, and to create better methods and tools to assess the future social, environmental and economic impacts of these changes. Only then can effective planning strategies to achieve sustainable land use systems be identified.

An important driving force behind urban expansion is, of course, the growth of the urban population. But, talking about Europe, this is not a sufficient explanation. The major trend is that European cities have become much less compact. Since the mid 1950s European cities have expanded on average by 78 %, whereas the population has grown only by 33 % (EEA 2006). This is not a surprise in densely populated regions like the Randstad in the Netherlands, but even in regions where the population is decreasing, urban areas are still growing, notably in Spain, Portugal and Italy and in eastern Germany. Leipzig-Halle is an example of a region which suffers from both the problems of a shrinking city and urban sprawl (Figure 2). The same trend – that urban areas expand approximately two times faster than the population – can be seen in the United States and China (Figure 3).

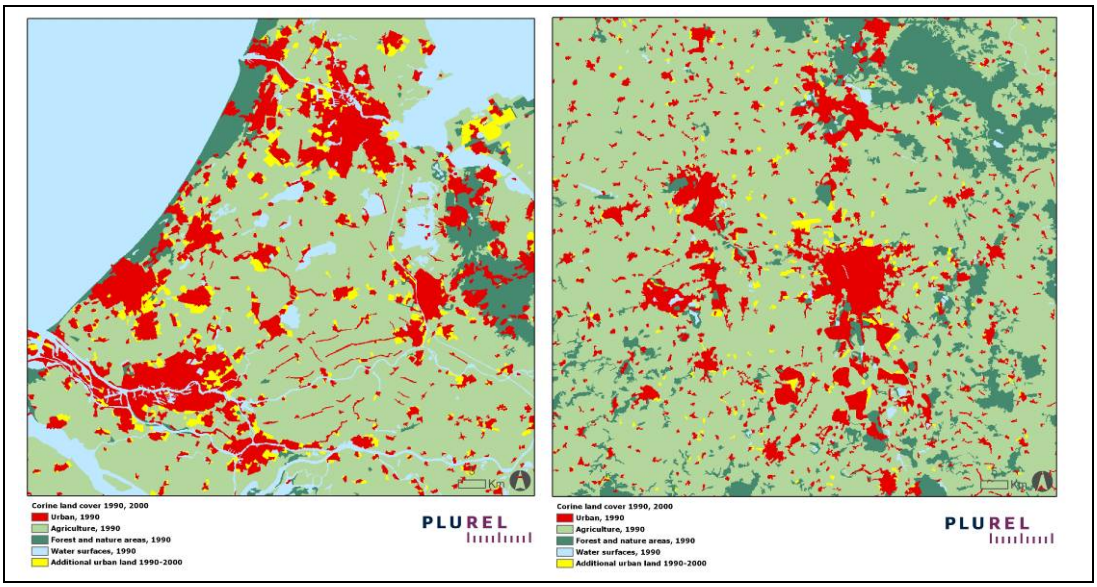


Figure 2. Urban expansion on the edges of existing agglomerations in the Randstad area (to the left) and in the Leipzig-Halle region (to the right). Source: Corine Land Cover Databases 1990 and 2000.

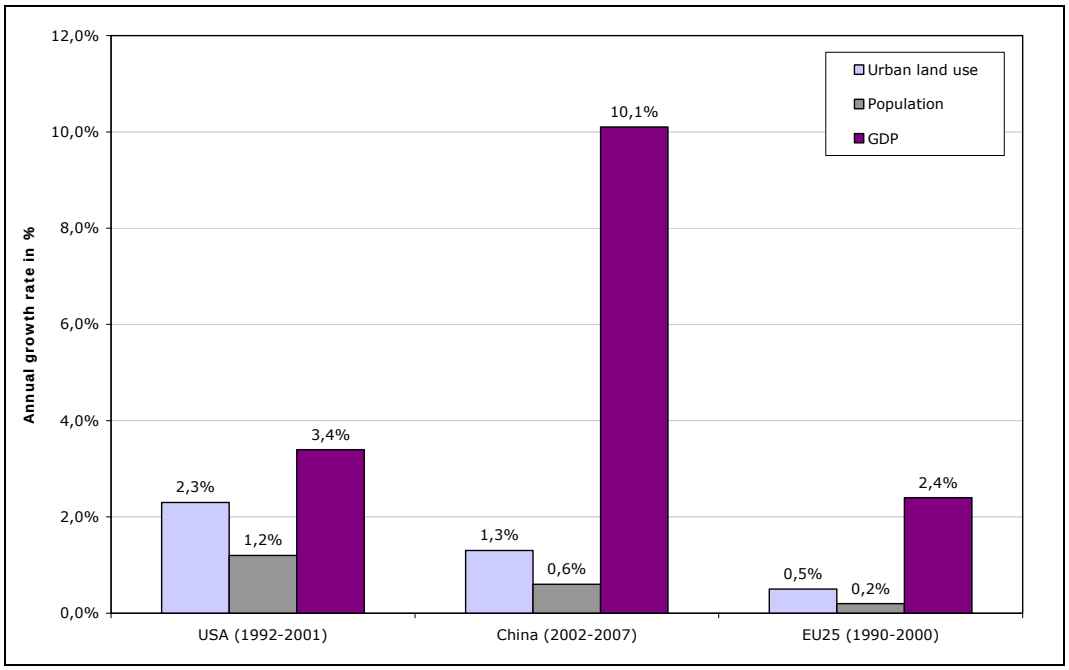


Figure 3. Growth rates for urban land use, population and GDP in EU, United States and China. Sources: Zhu et.al 2004; The Ministry of Land and Resources P.R.C. 2007; U.S. Department of Agriculture, 2003; European Environment Agency 2005; United Nations databases, 2009.

What does the future look like? In PLUREL four scenarios for future development based on the global scenarios of the Intergovernmental Panel on Climate Change (IPCC), known as the Special Report on Emission Scenarios were defined (Ravetz and Rounsevell 2008):

A1 "Hypertech" describes a future world of rapid economic growth, the rapid spread of new technologies and declining energy prices.

A2 "Extreme water" describes a ruralised world, economic development is primarily regionally-oriented, and per capita economic growth and technological change are fragmented and slow.

B1 "Peak oil" describes a future resilient society of environmental and social consciousness – a global approach to sustainable development, and a dramatic increase in energy prices.

B2 "Fragmentation" describes a divided world of slow economic growth and a fragmentation of society in terms of age, ethnicity and international distrust.

Scenario A1 is likely to see small poly-centric towns to become even more popular and it may lead to increased peri-urbanisation of rural areas, while in B1, most people attempt to return to larger towns and cities as high transport costs will limit commuting distances. In A2 huge sums of money are spent on defence and adaptation to climate change and people are attracted to live in small, self-supporting communities, and in B2 cities become more dispersed as younger migrants dominate city centres while the older natives escape to the outskirts and enclaves outside the city. But, regardless which future scenario we choose, urban expansion will continue with 0.4 – 0.7 % per year, which is more than 10 times higher than the development of any other comparable land uses, e.g. agriculture, grass land, forestry (Figure 4).

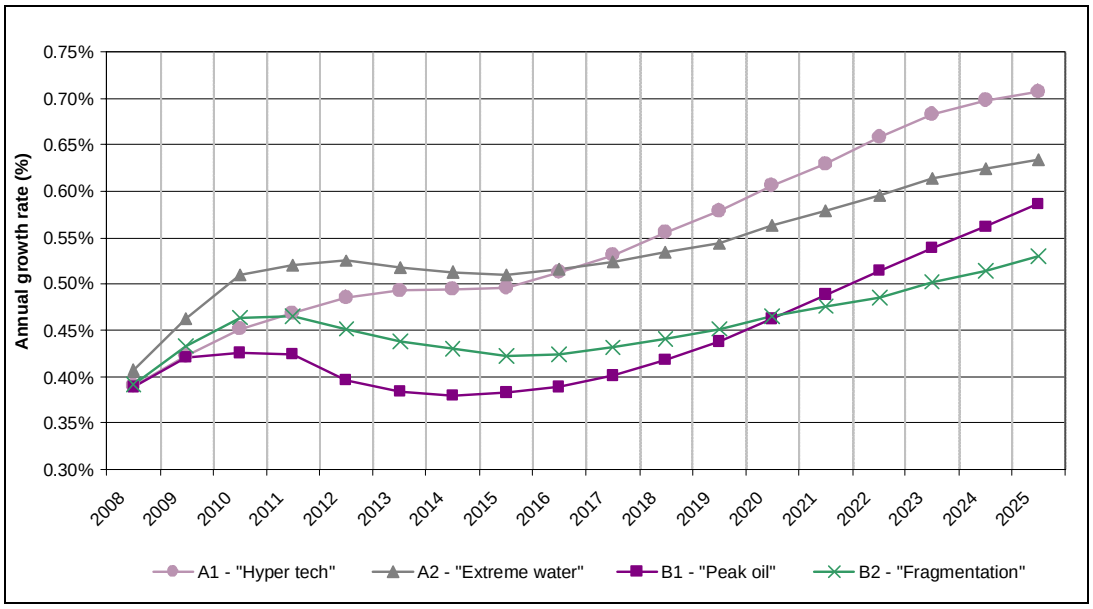


Figure 4. Development of built-up areas based on the four PLUREL scenarios. The figures are calculated from the NEMESIS econometric model developed by the Research Laboratory ERASME in Paris.

The pattern of urban growth in Europe was assessed by applying a 'regional urban growth model' allocating the urbanization pressures to every 1 km grid cell in Europe. Most of the development will take place in peri-urban areas, i.e. discontinuous built development containing settlements of less than 20,000 inhabitants and with an average density of at least 40 persons per km2 (Loibl and Köstl 2008). Such areas are growing four times faster than urban areas, and at a rate which would double their total area of 48,000 km2 in 30-50 years. The highest share of peri-urban areas in Europe is along the 'pentagon' of London – Paris – Frankfurt – Munich – Milan, with the highest concentration in Greater London and the Benelux countries, but also in large parts of Poland as well as in the Copenhagen / South Swedish region (Figure 5) (Piorr et al. 2011).

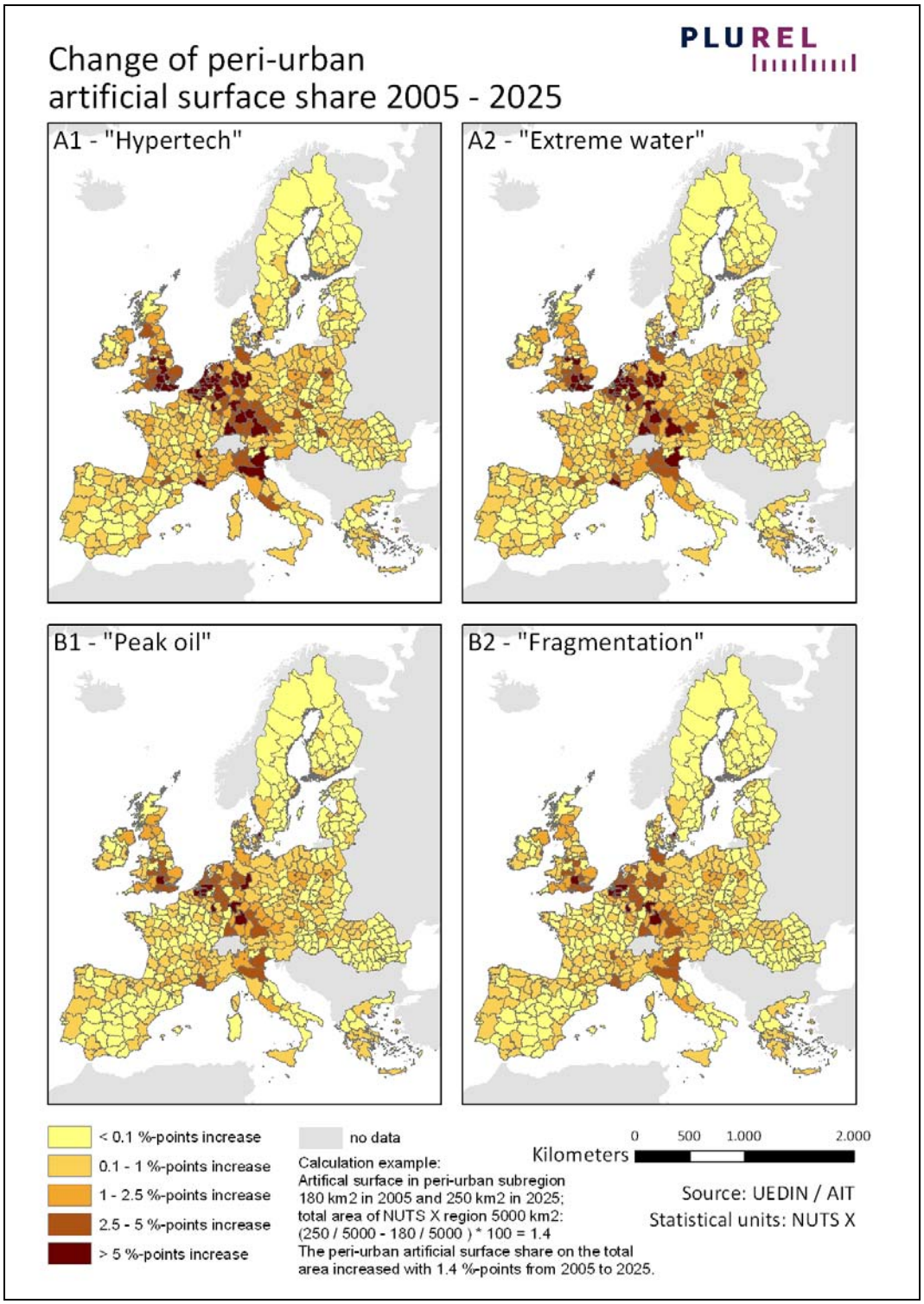


Figure 5. Peri-urbanisation in Europe. Share of artificial surface per region.

The consequences of urban sprawl

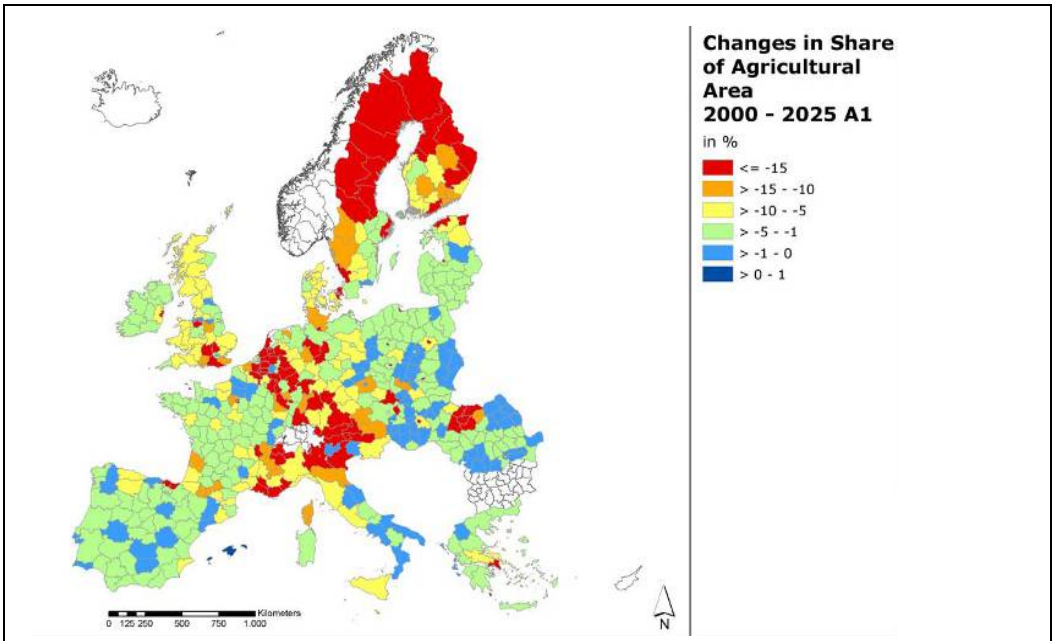
There are many impacts of such rapid expansion. In the EC document "Towards a strategy for the urban environment" (CEC 2004) urban sprawl is recognised as the most urgent of urban planning and design issues. Based on the results of the PLUREL project the most important negative consequences are:

- Consumption of land, loss of high-productive agricultural land
- Destruction of biotopes and fragmentation of landscape structure and ecosystems
- Less open space, longer distance to attractive recreational areas, and unhealthy lifestyles
- Increase in the dependency of private car, traffic congestion, longer commuting times and distances, climate change emissions and air pollution
- Decay of downtown areas; social segregation and larger gaps between rich and poor areas

Consumption of agricultural land will continue in all parts of Europe (Figure 6). In large parts of Scandinavia, UK, Central Europe, the Mediterranean coastal areas, but also in parts of Romania more than 5 % of the currently used agricultural area will be turned into sealed surfaces (note that in Northern Scandinavia the loss of agricultural land is mainly caused by afforestation, and not peri-urbanisation) (Piorr et al. 2011).

Photo 1. Urban development into agricultural fields of high productivity soils. Jakriborg, Sweden. (Photo: Kjell Nilsson)

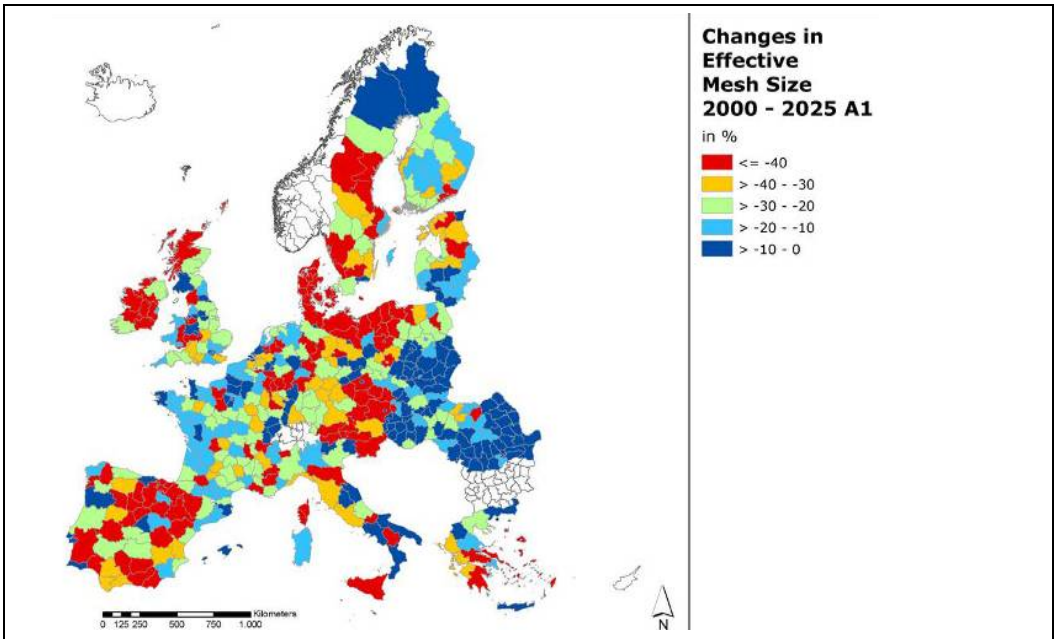
Amongst the areas with major agricultural importance The Netherlands, Belgium and the Mediterranean coast of France suffer the highest area-wide under highest loss of agricultural land, while in Northern Germany, Poland and Hungary the degree of land consumption occurs in a more scattered pattern. In addition, high productivity soils connected with intensive use and larger farm structure will be affected, as well as areas with rather low economic performance and a high share of part-time farming (Piorr et al. 2011).



Source: Zasada, Piorr, Berges (ZALF) 2010

Figure 6. Consumption of agricultural land in Europe 2000-2025.

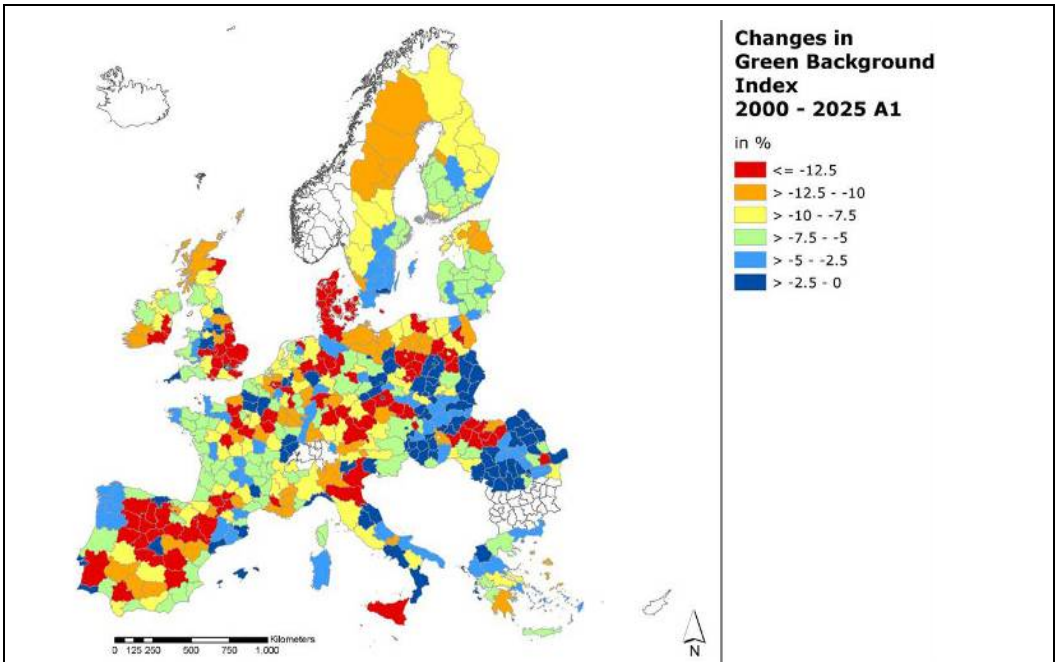
Effective Mesh Size measures landscape continuity indicating the probability of individuals to meet in a landscape fragmented by infrastructure and human settlements. Landscape fragmentation is concentrated in central Western Europe, where only small patches of open landscapes remain (Zasada et al. 2010). With increasing welfare, changing lifestyle and consumption pattern, urban growth is likely to continue, especially in the convergence regions of South and central Eastern Europe and in the Iberian Peninsula (Figure 7).



Source: Zasada, Piorr, Berges (ZALF) 2010

Figure 7. Landscape fragmentation in Europe 2000-2025.

A similar pattern can be seen when it comes to recreational capacity, described as a Green Background Index (Figure 8) (Zasada et al. 2010). This might have serious implications on people's health and well-being. Society today is faced with increasing incidence of various forms of poor health related to modern lifestyles. Natural outdoors and natural elements such as forests, parks, trees and gardens are known to provide opportunities to enhance public health (Nilsson et al. 2011). For example, activities in natural outdoor environments are known to be good for mental and physical health. But more and more people are getting longer and longer distances between their homes and green areas for outdoor recreation and exercise, since it is a well-known fact that the distance has a critical effect on people's use of green spaces.



Source: Zasada, Piorr, Berges (ZALF) 2010

Figure 8. Recreational capacity in Europe 2000-2025.

The ultimate goal of the transportation system is good accessibility. The highest levels of accessibility are usually reached in densely built areas where workplaces, shops, services and activity centres are in close proximity. Urban sprawl and low-density peri-urbanisation leads to longer commuting and encourages car use, which tends to exclude poor and carless people, as well as promoting an unhealthy lifestyle (Frumkin et al. 2004, Helminen et al. 2009). One should also expect higher emissions, that also is the case with particulate matter and CO2, while NOX emissions from road transport are expected to decline despite an increase in traffic, due to take up of catalytic converters (Piorr et al. 2011). Despite lower emissions per vehicle, impacts of traffic congestion is a serious health problem in the future as well as the problem with high economic costs due to time and fuel wasted (Levy et al. 2010).

Finally, at a certain point spatial concentration of population and economic activity in metropolitan areas leads to an increase of their functioning costs above the level of aggregated benefits. When this point is reached, many cities experience a counter-urbanisation, where people move from urban to peri-urban or rural areas in order to achieve better living conditions and life quality. At the same time, an inflow of migrants from low-income countries is occurring mainly to low status districts in the inner-metropolitan periphery leading to a growing social and spatial segregation. This process may cause a shift in the balance of attractiveness in favour of medium-sized and small towns in regions with lower population density at the cost of large metropolitan areas (Piorr et al. 2011). In the United States cities like Detroit, Atlanta and Nashville has been

named doughnut-cities because of expanding peripheral parts while the central parts turn into slum.

Photo 2. Decay of inner-city areas in Leipzig, Germany. (Photo: Kjell Nilsson)

But we have also identified positive effects of peri-urbanisation, such as:

- Fulfilment of people's living preferences
- Under smart growth: attractive and competitive urban environments
- Proximity to consumers for local producers and potential for eco-friendly lifestyles
- More life and economic development to rural communities

The main reason, especially for young families, for moving from urban to peri-urban areas is that they want fresh air, clean water, green surroundings and a safe milieu for their children to grew up in. With the development of smart technologies for long distance working and an improved public transport system people tend to accept longer commuting distances between their home and the working place. A related reason is people's desire for living in their own house and the simple fact that house prices generally decreases with growing distance to the urban conglomeration. The life in peri-urban and rural communities also gives its inhabitants more opportunities for more environmentally friendly lifestyles, e.g. by growing own vegetables, buying meat from local farmers, composting organic wastes, etc. At the same time the newcomers bring new spirit, youth and liveliness to, in some cases, declining and sleepy rural villages.

Strategies for growth management

How can sprawl be avoided while these opportunities can be realised? Development in peri-urban areas causes conflicts between urban, agriculture and nature values. It challenges the distinctions between urban and rural areas as applied in policies and regulations. The seven PLUREL case study regions show examples of how these conflicts and the pressure towards peri-urban areas can be strategically managed in different development and regulatory contexts.

The assessment of growth patterns at European level was supplemented by more detailed modelling at the case study level developed in cooperation with partners from the regions. The modelling approach at the case study level involves an adaption of the general

scenarios to the context of the individual case studies where important and likely aspects of the future as well as planning responses within the scenario storylines have been elaborated in dialogue between researchers, and local stakeholders and practitioners. The modelling was carried out with MOLAND, a cellular automata model which simulates urban development as a growth process, where the location of each grid cell, the suitability of the land, zoning regulations, as well as the status of neighbouring cells determine the probability of land use change.

Adapted case study scenarios where chosen for modelling of land use change until 2025 and assessment of sustainability in parallel with the cruder set of results covering Europe. The assessment of sustainability rely on a wide set of sustainability indicators as well as a detailed response function approach based e.g. on changes in land use along the rural urban continuum. The consequences can only be fully exploited in cooperation with practitioners and stakeholders from the regions that can compare sustainability indicators with desired outcomes and subsequently revise strategies to aim for desired outcomes in a future that is uncertain but may be approached by assessing scenarios. The following sections present sustainability impacts assessment results form the PLUREL project as well as the results of cooperative case studies based on detailed modelling at the regional level as well as analysis of strategies.

To summarize, the following strategies could be identified as important steps towards more sustainable urban-rural futures:

1. Better coordination between transport, land use and open space planning

The Regional Structure Plan of the Hague Region and the Scheme of Territorial Coherence of Montpellier Agglomeration are examples of modern advanced strategies for better coordination of transport and land use planning. The Regional Structure Plan of the Hague Region shows the region's main strategies that is strengthening the relation between Spatial Planning and Traffic / Transportation, coordinates sectoral ambitions and goals, and is the basis for long-term politically backed-up agreements (Aalbers et al. 2010). In the Scheme of Territorial Coherence (SCOT) of Montpellier Agglomeration, a highly attractive region, there is a political willingness in both speech and action to develop the region into a sustainable dispersion of land use and high quality urban development (Aalbers & Eckerberg 2010).

2. Good governance and integrated policy approaches

Good governance, i.e. the sphere of public debate, partnerships, interaction and dialogue between citizens, organizations and local governments, is a precondition for achieving sustainable development (Evans et al. 2005). As examples of successful governance attempts in order to lay an overall strategy for protecting agriculture and green space in the urban fringe the Regional Structure Plan of The Hague Region and the Scheme of Territorial Cohesion of Montpellier Agglomération has already been mentioned. On the contrary is the situation of Warsaw, which is characterized by hard pressure on high-value nature and agricultural areas due to high growth rates and uncontrolled peri-urbanisation both in the area directly surrounding the city and in the whole Mazovian region. The attempts by the regional authorities as identified in existing strategies and plans do not provide sufficient basis for sustainable development. The policies are focused on specific problems, mainly of economic nature, and the local dimension is superior to overall coordination and cooperation with neighbour communities (Groschowski & Pieniazek 2010). Not only planning and environmental, but also financial and sectorial policies contribute to urban sprawl.

Of course, coordination of the wills of 72 independent municipalities in the Warsaw Metropolitan Area is more difficult than the 9 of the Hague Region, but, on the other hand, the Hague Region is part of larger agglomerations as the province of South Holland in the Randstad. And Montpellier has succeeded in joining the ambitions of, for the time being, 31 municipalities in a strategy for more equally distributed development.

3. Urban containment by conservation and densification

Urban containment, or a clear spatial boundary between urban and rural land, is an important instrument regarding growth management for sustainable development. A clear physical delineation between the urban and the rural does not mean that urban and rural development issues should be treated separately. On the contrary, we need coordinated and integrated approaches involving all relevant planning authorities – this is especially important in countries with many small independent municipalities and a weak regional level – as well as including stakeholders and their organizations. Strong planning legislation (government) as well as an open governance process are key factors in such an approach. The Green Belt Policy of the UK and the Green Heart in the Netherlands are policies that have proven to be successful in quantitative terms, but we can also find negative consequences as observed in the Greater Manchester Area. A certain proportion of the development, which would have taken place in the green belt is merely pushed further out, leapfrogging the belt itself, and leading to a greater impact on the countryside and longer travel distances, a problem that may become more acute as people are increasingly prepared to accept longer commuting distances and with the growth in teleworking (Ravetz 2008).

Urban densification is another common strategy for avoiding urban sprawl. The EC Thematic Strategy on the Urban Environment (CEC 2006) besides better coordination between urban transport and land use planning recommends more compact settlements. This has been taken seriously by the Hague Region – 80 % of all urban development should take place within the existing urban fabric. However, quality of life in the city is a bottleneck for urban densification. For instance, densification at the cost of parks and other public open spaces is a risk. Therefore, in the Regional Structure Plan of The Hague Region, multiple functions and high quality public space, as well as integrated poly-centric development, e.g. limited sprawl in an organized way, are mentioned as strategies to maintain quality of life in dense areas (Westerink et al. 2010).

A dense city with a lot of sealed surface and lack of green space is also more vulnerable for the effects of climate change. For example, the increasing number of heavy rainstorms will cause even bigger problems with flooding, if there are no areas left over for the water to infiltrate into. The issue of urban density vs. green space is an example of the potential conflict between mitigation and adaptation concerns (Carter 2008). If increasing density, in order to reduce energy by lowering travel demand and heating requirements, leads to the loss of green space, one consequence will be the loss of a vital adaptation resource. Also temperatures will change in the future and the so-called Urban Heat Island effect will strengthen the effects of climate change. Results from the city of Manchester show that an increase of green space of 10 % in residential areas will compensate for even the worst case temperature scenario in 2080 (Gill et al. 2007).

4. Development of a Compact Garden City with attractive inner-city areas

A critical discussion of the simplistic point of view promoted by European Commission policy on urban planning and sustainability is thus essential (Porter & De Roo 2007). To prevent residents from fleeing compact cities in search for better living environments in the fringe new concepts have to be developed that makes the compact city more attractive. The challenge is how to combine the need for a compact city with people's need for green space close to where they live – The Compact Garden City. The concept of a green metropolis by the seaside in The Hague and a variety of urban renewal and social regeneration projects in Leipzig are examples of such ambitions. In Leipzig, due to outmigration and suburbanisation, there is a variety of vacant buildings and brownfields, so the urban core can be described as perforated rather than compact. The overall strategy is to counter suburbanisation processes by enhancement of the city and improving quality of life in order to retain residents in the city (Sinn et al. 2008).

5. Preservation and development of blue and green infrastructure for biodiversity and health-promoting transport systems

Another way of integration of transport and open space planning is to develop the green and blue corridors for energy-saving means of transport such as walking and cycling, biodiversity and human health and well-being. The green belt of Leipzig, involving 13 municipalities in a spatial, environmental and recreational strategy, and the Red Rose Forest covering the 6 western districts of Greater Manchester are examples of this. The Red Rose Forest, one of a national set of community forests created in the early 1990s, forms together with the adjacent Mersey Forest and the Pennine Edge Forest an extended network of community woodland, often layered over mining spoil and landfill sites, where much of the previous contamination and dereliction has been greened and made safe and usable (Ravetz 2008).

Occassionally the peri-urban zone contains areas of certain natural values, which thanks to their localisation give the urban population easy access to areas of high natural quality. An example is Skocianski Nature Reserve – a nature reserve and the largest brackish wetland in Slovenia in the urban fringe of Koper. The attribute of the nature reserve is its rich flora and fauna including a number of endangered species. The area was severely damaged in the 1980s, when the local authorities planned to fill up the lagoon in order to develop the area as an industrial and commercial zone. In 1993, the NGO BirdLife Slovenia initiated a public campaign to protect the area, and after five years of persistent work the area was officially declared as a nature reserve by the Slovene government. BirdLife Slovenia has obtained a license to manage the area, which is now open for the public to observe the birds and forms of natural wildlife (Pintar et al. 2008).

Xixi area, situated northwest of the West Lake District in Hangzhou, used to be a plain with a large blue network of ponds and rivers situated northwest. The area, known for its beauty and rich ecology, was dominated by farmland and fishing with only few dispersed settlements. Despite the proximity to central Hangzhou hardly any urbanisation took place before 1990, but in 1996 Jiangcun Village was incorporated in the West Lake District of Hangzhou and a large-scale urbanisation process took shape. In less than ten years, the area had become one of the largest residential districts in Hangzhou, whereas the wetland area had decreased from 60 to 10 km2. At the same time, the city authorities experienced a growing demand for new recreational areas due to the expansion of the city westwards. The authorities reacted promptly, in November 2001 they passed the planning program for “Xixi Wetland Cultural and Ecological Tourism Area” and in 2004 the Xixi Wetland Reserve Master Plan was approved (Jianjun et al. 2008).

Photo 3 Two Camarque horses in Skocianski Nature Reserve. (Photo: Kjell Nilsson)

6. Promotion of local production and short circles

In the old days there were short circles in the flow of resources between towns and the surrounding countryside. In a more sustainable future urban-rural relationship we need an urbanism where recycling and circular resource flows are re-established in water and waste management, food and energy production, supply with raw materials, etc. The PLUREL case studies present examples of how this goal can be achieved by different ways of supporting local food production.

The Koper strategy to protect 1st quality agricultural land appears to be the most advanced sectoral strategy of all the strategies referred to. Agriculture was one of the most important economic activities in the Koper region in the past, but today it has lost much of its economic importance. A major problem is small and deteriorated parcels and an ageing farmer population. Another threat is urban sprawl on high quality agricultural land. However, analyses show that there are good opportunities for further development of agriculture in the region, mostly in connection with tourism and recreation, but also for local consumption. Therefore spatial planning with a new approach to classification procedure of the agricultural land is under development that includes soil characteristics, land exposition, possibilities for carrying out economically and environmentally sound production, and isolation from pollution sources (Pintar et al. 2010).

Also Montpellier Agglomeration has an active policy for protection of agricultural land use in the urban fringe. Besides land use zoning, land price regulation and stimulation of shorter channels from farmer to consumer an agri-park is developed in North Lez. The agri-park concept relies on multifunctional land use where recreational and other social functions are integrated in the agricultural production and farming as a cost-efficient way of protecting and maintaining open spaces in the urban fringe (Buyck et al. 2008).
The most ambitious initiative regarding local food production is found in the market town Todmorden, 20 km north of Manchester, with the aim of making themselves self sufficient in food by 2018. The initiative, named Incredible Edible, has a true bottom-up perspective encouraging public and private bodies to help finding land, removing legal constraints, and supporting local action.

7 Ecosystem services

The surrounding landscape provides a lot of other goods beneficial for the urban community. We sometimes call these common goods as “Ecosystem Services” or “Quality of Life” factors:

- Biodiversity — since 70 % of the European population live in urban areas, the experience of nature and wildlife close to where people live is important for the environmental consciousness of future generations
- Air quality — forests and trees clean the air from particles and gaseous pollutants
- Water — protection of groundwater resources and flood risk management
- Health — contact with nature and outdoor recreation have been seen as mean to combat incidences of poor health related to modern lifestyles, e.g. stress-related illnesses, diabetes 2 and cardio-muscular diseases.
- Recreation — since distance has proven to be the most important single factor for people’s recreational use of the outdoor environment everybody should have access to attractive green spaces close to where they live

Ecosystem services represent considerable economic values. The possibilities for financial compensation to farmers for providing ecosystem services in the peri-urban areas are noted as important. In The Hague Region farmers are rewarded for their improvement of the landscape, so-called Green and Blue Services. The system was instituted by a fund that was created by a number of municipalities from their revenues of housing projects. The Green Blue Service strategy provides an alternative to land purchase since the farmers gain extra income. The strategy is tailored to farmers’ entrepreneurship. They negotiate the design, measures and the price. The positive aspects include that the strategy contributes to maintaining agriculture, but it also contributes to biodiversity, recreation and tourism. There is an interest from both farmers and the authorities to develop the model further on as well as to fill the green funds with money, but the strategy needs complementary measures, such as land banking to make a real difference (Aalbers & Eckerberg 2010). The freezing of land use status for 15 years combined with support to farming business as implemented in the territorial cohesion plan (SCOT) of Montpellier Agglomeration are examples of such measures.

Photo 4. Green Blue Services give the farmers in the Hague Region extra income. (Photo: Kjell Nilsson)

Future perspectives

In the PLUREL case studies we have seen several successful bottom-up initiatives for the urban rural interface, e.g. the preservation of Skocianski Nature Reserve in Koper and the Incredible Edible movement in Todmorden. We have also experienced exemplary models for good governance as the Regional Structure Plan of The Hague Region and the Scheme of Territorial Coherence of Montpellier Agglomeration. But we can also see the need for strong government in the shape of legislation and an efficient spatial planning system. In this sense the regional perspective and the rural-urban region are the most strategic levels, but we can also see the need for initiative from EU on the pan-European level. Otherwise, we can expect growing gaps between different regions – north/south, east/west, rich/poor – instead of a more sustainable and inclusive Europe.

The ability/power of the public hand to resist the push of market actors towards more urban sprawl are depending on two things; the strength of the planning instruments and on which level in the governmental system land use decisions are taken. The more decentralised system and laissez-faire oriented policy, the weaker is the steering potential and vice versa. The PLUREL case studies represent different spatial planning trends and traditions, and different legal and administrative planning families. But land use change also depends on other kinds of dynamics such as economic and taxation systems, transport, housing and other sectoral policies etc. A comparison of the case study regions' potential ability to control peri-urban development shows significant differences (Tosics & Gertheis 2010). The Hague Region has the largest potential to control urban development, followed by Manchester and Montpellier, while Eastern European city regions as Warsaw and Koper today have changed from a centralised planning system to a more liberal system where the market has a free hand (table 2). We have also identified the need for an integration of spatial planning and territorial cohesion policies with financial and taxation mechanisms, which often create direct or indirect incentives for urban sprawl, and that more tools should be given to the public sector to efficiently use value capturing.

	Haag-landen	Man-chester	Mont-pellier	Leipzig	Koper	Warsaw
Financial transfer system	0.67	1.00	0.67	0.67	0.00	0.33
The local taxation system	0.67	0.67	0.67	0.33	1.00	0.67
Local government financing systems	**0.67**	**0.83**	**0.67**	**0.50**	**0.50**	**0.50**
Economic development and infrastructure	1.00	0.50	0.50	1.00	0.50	1.00
Transport	0.83	0.67	0.50	0.50	0.17	0.33
Housing	1.00	0.67	0.67	0.33	0.33	0.33
Sectoral policies	**0.94**	**0.61**	**0.56**	**0.61**	**0.33**	**0.56**
Tools to steer development	**0.75**	**0.50**	**0.50**	**0.75**	**1.00**	**0.25**
Summary	**6.53**	**5.45**	**4.74**	**4.69**	**3.83**	**3.97**

Table 2. Strength of the public sector to control urban development (Tosics & Gertheis 2010).

A better balanced and sustainable development requires more policy attention on urban-rural interface at regional level, but there is also need for a new agenda for EU policies and funds with any linkage to spatial development. When it comes to policy-making, the time has come to challenge the historic distinction between urban and rural issues. Instead, we need a more holistic, territorially oriented perspective to shape future EU agricultural and structural policies. Integrated urban-rural development should be accepted as a general requirement and put as a condition for EU support from Structural and Cohesion Funds and the CAP (Common Agricultural Policy).

Research has an important role to play to support sustainable urban-rural relationships. We have also identified some knowledge gaps. First of all, the effects of different decision-making mechanisms need more attention. We are still too uncertain of how effective different kinds of steering mechanisms, e.g. planning legislation, taxation rules, housing policies etc., are when it comes to land use changes. Secondly, the knowledge about the efficiency of different transport systems in relation to the form of urban agglomerations still is very elementary. Thirdly, the vision of the Green Compact City needs a better knowledge base when it comes to the optimal balance between urban densification and preservation of the green infrastructure. For the fourth, forestry and agriculture will have a new and important role to play in the future urbanised society. Research should therefore generate knowledge that will improve the planning and management of forests as well as how to better integrate local food production into urban settings. For the fifth, ecosystem functions and services provided by the green infrastructure and their potential for adaptation to climate change is a topic that needs to be further developed. An important part of this is to develop good methods for calculating the monetary value of these goods and services.

Finally, urbanisation is a global phenomenon – the World Resources Institute has estimated that urban areas in developing countries will account for nearly 90 % of projected world population increase between 1995 and 2030. Therefore, managing urban population change will be one of the most important challenges during the next decades, along with moderating the impacts of climate change. In developed countries, the urban future will involve dealing with complex changes in the composition of urban populations and containing urban sprawl beyond the suburbs to retain the critical ecosystem services

that will sustain population growth. In developing countries, where 80 % of the world's population resides, central issues will be how to cope with an unprecedented increase in the number of people living in urban areas, and with the growing concentration of these urbanites in large cities with millions of residents and declining availability of natural resources. Urban sprawl is a small problem in Europe compared to the size of the problem in developing countries. Therefore, efforts to support developing countries with knowledge and experiences of sustainable urban development and urban-rural relationships are urgent.

Main end-products of PLUREL

PLUREL provides tools and publications that allow users to explore the sustainability of peri-urban land use relationships, and to gain insight into the challenges facing Europe and its regions. Tools and publications (including all publicly available deliverables) can be accessed through www.plurel.net.

1. PLUREL Xplorer

PLUREL Xplorer condensates and configures the knowledge and various products of PLUREL into a form that supports planning and policy discussions on urban-rural land use at pan-European and regional level. It provides information for policy-makers, planners and other practitioners on processes, problems and places. PLUREL Xplorer's user entry features a modular design similar to the apps system. Here, short and illustrated fact sheets guide the user through the knowledge bits. They allow for the immediate download of comprehensive background information in the form of reports, figures, maps or sketches.

The user entry offers three different perspectives on peri-urbanisation. Processes is the holistic approach comprising all products, interlinked in an analytical chain. The Problems category comprises the thematic perspective, while Places displays spatially explicit results from PLUREL from the pan-European to the case study level.

2. Integrated Impact Analysis Tools

The European integrated Impact Analysis Tool (iIAT-EU) represents a novel interface between science and policy-making contributing to further knowledge on impacts of future urbanisation in Europe. The application principles, the functionality and the graphical user interface of the iIAT-EU have been developed in narrow collaboration with planners, administration, policy makers and stakeholders. Combining thematical broadness of projections with spatial flexibility is the new quality of the iIAT –EU, facilitating knowledge integration for discussions and decision making towards sustainable solutions for urban-rural relationships.

The iIAT-Region approach, technically similar to the iIAT-EU, allows selecting regional land use related impact indicators, the case studies to be compared, and the scenarios that should form the basis of the comparison, as well as thresholds or target values for single indicators. Currently, three European PLUREL case studies are included: Haaglanden (Netherlands), Koper (Slovenia) and Leipzig-Halle (Germany).

The PLUREL iIAT is an internet accessible tool that displays results in form of spidergrams. Those spidergrams provide a surface that enables an easy and holistic perception of multilevel information. These spidergrams allow for a visualisation of changes in sustainability indicators, as positive or negative trends according to different scenarios are immediately visible as shifts in the lines of the spidergrams.

3. MOLAND-Light

The MOLAND-Light is an online tool for exploration of planning options in European regions. It responds to a request by stakeholders to interact more directly with and to iteratively modify the results. MOLAND-Light is a simplified version of the MOLAND

land use model providing online access to land use modeling for all regions in Europe based on common European datasets such as the CORINE land cover maps. It can be used to easily and quickly set up a simulation for a region in Europe, configure a core set of drivers of land use change, run a simulation and view the results in the form of the future land use map and a selected set of indicators. All data is stored on the servers of the European Commissions Joint Research Centre.

Please note that MOLAND-Light is a simplified model and therefore only intended for demonstration purposes, not for research or policy analysis.

4. The book 'Peri-urban futures: Scenarios and models for land use change'

Editors: Stephan Pauleit, Simon Bell, Carmen Aalbers, Thomas Sick Nielsen, Kjell Nilsson
Publisher: Springer Verlag

The book will synthesise the results from across the PLUREL project to help anyone who is concerned about land use dynamics in Rural-Urban Regions. The book will integrate the EU-perspective and the generic lessons of the project with the contextual richness of the case studies from where the locally grounded development of strategies for the peri-urban will provide inspiration for practitioners.

5. Synthesis report 'Peri-urbanisation in Europe: Towards European policies to sustain Urban Rural Futures'

Editors: Annette Piorr, Joe Ravetz, Ivan Tosics
Publisher: University of Copenhagen/Academic Books Life Sciences (ISSN: 978-87-7903-535-5)

The peri-urban – the space around urban areas which merges into the rural landscape – is growing across Europe. The peri-urban is a zone of innovation, knowledge based and globalized enterprise. It is also the place which attracts new types of housing, transport infrastructure and multifunctional agriculture, with a diverse range of recreation sites and ecosystem services. Urban development, by far the most rapidly expanding land use type in Europe, puts peri-urban areas under particular pressure: the growth of built development in peri-urban areas is likely to be up to four times as fast as in urban areas. The risk is urban sprawl, with its many societal and environmental problems. A more balanced and sustainable pattern of development needs a better policy focus, not only on periurban areas, but on the wider rural-urban region which surrounds them. A more integrated EU level policy and funding system can enable and encourage integrated development at the local, regional and national levels. This synthesis report, based on new research from the EU Integrated Project PLUREL, quantifies the trends, risks and opportunities for peri-urban areas, sets out new concepts for urban- rural linkages, and provides recommendations for targeted policies for rural-urban regions across Europe.

References

Aalbers, C. & Eckerberg, K. (2010) Governance patterns and performance of regional strategies in peri-urban areas. Comparative analysis of seven case studies in Europe and China. PLUREL Deliverable 3.3.8.

Aalbers, C., van Dijk, T., van der Jagt, P.D., Westerink, J., Rodenberg, J. & Velinova, T. (2010) Analysis of regional spatial planning and decision making strategies and their impact on land use in the urban fringe. The case study of the Hague Region, The Netherlands. PLUREL Deliverable 3.3.1.

Buyck, J., Chery, J.P. & Jarrige, F. (2008) Montpellier case study. Analysis of regional and decision making strategies and their impact on land use in the urban fringe. PLUREL Deliverable 3.3.2.

Carter, J. (2008) Climate change: a rural-urban region perspective. PLUREL Newsletter No 3, April 2008, Copenhagen, pp. 4-5.
www.plurel.net/images/PLUREL_%20Newsletter_No%203_screen.pdf

CEC (2004) Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions Towards a thematic strategy on the urban environment. Commission of the European Communities, Brussels.

CEC (2006) Communication from the Commission to the Council and the European Parliament on Thematic strategy on the urban environment. Commission of the European Communities, Brussels.

European Environment Agency (EEA) and European Commission Joint Research Centre (JRC) (2006) Urban sprawl in Europe. EEA Report No 10/2006, Copenhagen.

European Environment Agency (2005) Land cover accounts (LEAC) based on Corine land cover changes database (1990-2000). Accessed at http://www.eea.europa.eu/
Evans, B., Joas, M., Sundback, S. & Theobald, K. (2005) Governing sustainable citis. Earthscan, London/Sterling.

Frumkin, H., Frank, L. and Jackson, R. (2004) Urban sprawl and public health. Island Press, Washington.

Gill, S., Handley, J., Ennos, R. and Pauleit, S. (2007). Adapting cities for climate change: the role of the green infrastructure. Built Environment. 30(1), 97-115.

Groschowski, M. & Pieniazek, M. (2010) Analysis of regional spatial planning and decision making strategies and their impact on land use in the urban fringe. Case study: Warsaw Metropolitan Area, Poland. PLUREL Deliverable 3.3.4.

Helminen, V., Ristimäki, M.,Kontio, P., Rita, H.,, Vuori M. (2009) Response function for commuting. PLUREL deliverable D2.3.7.

Jiangjun, Y., Youjoun, H., Pauleit, S., Spiekermann, M. & Burkhardt, I. (2008) Analysis and assessment of regional and local government and planning strategies. Hangzhou case study. PLUREL Deliverable 3.3.7.

Jørgensen, G., Nielsen, T.S., Grunfelder, J. & Jensen, J.M: (2010) Urban growth management. Effectiveness of instruments and policies. PLUREL Deliverable 2.4.1.

Levy, J.I., Buonocore, J.J. & von Stackelberg, K. (2010) Evaluation of the public health impacts of traffic congestion: a health risk assessment. Environmental health 2010, 9:65.

Loibl, W. & Köstl, M. (2008) Report on a methodology to delineate RUR sub-regions. PLUREL deliverable D2.1.4. M. (2008) Report on a methodology to delineate RUR sub-

Ministry of Land and Resources P.R.C. (2007) Communique on land and resources of China 2007.

Nilsson, K., Sangster, M., Gallis, C., Hartig, T., de Vries, S., Seeland, K. & Schipperijn, J. (2011) Forests, trees and human health. Springer, New York/Dordrecht/Heidelberg/ London.

Pintar, M., Udovic, A., Istenic, M.C., Zupan, M., Prus, T., Pirnat, J., Hladnik, D. & Glavan, M. (2008) Analysis of regional spatial planning and decision-making strategies and their impact on land use in the urban fringe – case study Koper. PLUREL Deliverable 3.3.5.

Pintar, M., Kralj, T., Instenic, M.C. & Perpar, A. (2010) Report on enhanced planning and decision making for urban fringes, including land use scenarios for the case study Koper. PLUREL Deliverable 3.4.7.

Piorr, A., Ravetz, J. & Tosics, I. (2011) Peri-urbanisation in Europe: Towards a European Policy to Sustain Urban-Rural Futures.

Porter, G. & De Roo, G. (2007) The end has no merit. In: De Roo, G. & Porter, G., Fuzzy planning. The role of actors in a fuzzy governance environment, Hampshire: Ashgate, pp. 1-18.

Ravetz, J. (2008) The city-region in time and space. Analysis of regional spatial planning and decision-making strategies, and their impact on land use in the urban fringe. PLUREL Deliverable 3.3.6.

Ravetz, J. & Rounsevell, M (2008) Scenarios – crystal balls for the urban fringe. PLUREL Newsletter No 3, April 2008, Copenhagen, pp. 1-2.
www.plurel.net/images/PLUREL_%20Newsletter_No%203_screen.pdf
Sinn, A., Haase, D. & Walde, A. (2008) Analysis of regional spatial planning and decision making strategies and their impact on land use in the urban fringe. PLUREL Deliverable 3.3.6.

Tosics, I. & Gertheis, A. (2010) Review of further instruments with indirect effect on regulation of peri-urban land uses. PLUREL Deliverable 2.2.2.

U.S. Department of Agriculture, Natural Resources and Conservation Service (2003) Annual National Resources Inventory.

United Nations databases (2009) Accessed at http://data.un.org/

Westerink, J., Kiers, M., Kok, K. & Aalber, C. (2010) Scenarios and enhanced strategies. Case study The Hague Region, The Netherlands. PLUREL Deliverable 3.4.1.

World Resources Institute (2001) Earthtrends: The environmental information portal. Washington DC, http://earthtrends.wri.org/

Zasada, I, Berges, R., Piorr, A., Schläfke, N., Werner, A., Toussaint, V., Müller, K. (2010) Modelling approach for response functions on agricultural production, ecological regulation and recreation function. PLUREL Deliverable D2.3.9-10.

Zhu Huiyi, Lu Changhe, Li Xiubin (2004) Land use studies in China, Journal of Geographical Sciences 14, supplement, pp 69-73.

Project partners

Participant role	Participant number	Participant name	Participant short name	Country
CO	1	Danish Centre for Forest, Landscape and Planning, University of Copenhagen	KU	DK
CR	2	Helmholtz Centre for Environmental Research - UFZ	UFZ	DE
CR	3	Leibniz-Centre for Agricultural Landscape Research	ZALF	DE
CR	4	Green World Research, Wageningen University and Research Centre	Alterra**	NL
CR	5	International Institute for Applied Systems Analysis	IIASA	AT
CR	6	AIT Austrian Institute of Technology Gmbh	ARC/AIT	AT
CR	7	Université catholique de Louvain	UCL	BE
CR	8	Institute of Local Government Studies	AKF	DK
CR	9	Finnish Environment Institute	SYKE	FI
CR	10	Ecole Central de Paris	UP1	FR
CR	11	Centre National du Machinisme Agricole, du Génie Rural, des Eaux et des Forêts**	CEMAGREF**	FR
CR	12	Centre for European Economic Research	ZEW	DE
CR	13	Christian-Albrechts-University of Kiel	CAU	DE
CR	14	University of Thessaly	UTh	GR
CR	15	Metropolitan Research Institute	MRI*	HU
CR	16	Urban Institute Ireland, University College Dublin	NUID-UCD	IE
CR	17	Joint Research Centre of the European Commission	EC-DG JRC	IT
CR	18	Polish Academy of Science	IGIPZPAN	PL
CR	19	University of Ljubljana, Biotechnical Faculty	UL	SI
CR	20	University of Bath, Department of Economics and International Development	UBATH	UK
CR	21	Centre for Urban and	UOM	UK

Participant role	Participant number	Participant name	Participant short name	Country
		Regional Ecology, University of Manchester		
CR	22	OPENspace Research Centre, Edinburgh College of Art	ECA	UK
CR	23	Scandinavian Branding A/S	SCANDING*	DK
CR	24	Büro für urbane Projekte – Leipzig	BUP*	DE
CR	25	Studio Mediterana	SM*	SI
CR	26	Munich Design International	MUDI*	DE
CR	27	RAL Architects	RAL*	NL
CR	28	The Queens University of Belfast	QUB	UK
CR	29	University of Groningen	RuG	NL
CR	30	Chinese Academy of Forestry	RIFPI,CAF	CN
CR	31	Alfred Peter Paysagiste	Atelier Alfred Peter*	FR
CR	32	Centre for the study of Environmental Change and Sustainability, University of Edinburgh	UEDIN	UK
CR	33	Hogeschool Van Hall Larenstein, Tuin- en landschapsinrichting	VHL	NL
CR	34	Doepel Strijkers Architects	DSA*	NL
CR	35	RIKS: research institute for knowledge systems	RIKS*	NL
CR	36	Technische Universität München	TUM	DE
CR	37	Stichting Dienst Landbouwkundig Onderzoek, Alterra	ST.DLO/Alterra	NL

* = Small and medium-sized enterprise (SME)

** = Third party arrangements

Partner 4, ALTERRA participated with Stichting Dienst Landbouwkundig Onderzoek (Stichting DLO), established in Wageningen, The Netherlands, as third party. Legal status of Alterra vs. Stichting Dienst Landbouwkundig Onderzoek was later changed resulting in a transfer of rights and obligations from Alterra (partner 4) to ST.DLO/Alterre (partner 37).

Partner 11, CEMAGREF participated with third parties « Ecole Nationale du Génie Rural, des Eaux et des Forêts: Engref /AgroParisTech" established in Paris, France ; and "Centre international d'études supérieures en sciences agronomiques: SupAgro", established in Montpellier, France

CO = Coordinator, CR = Contractor

Deliverable reports

Del. no.	Deliverable name	WP no.	Lead contr.	Dissemination level
D1.1.1	Description of key macroeconomic variables for NUTS-2 regions	WP1.1	UP1	**PU**
D1.1.2	Calculation of land use prices and land claims at national level	WP1.1	UP1	**PU**
D1.1.3	Urban land use claims at NUTS-2 level	WP1.1	UP1	**RE**
D1.2.1	Report on methods for demographic projections at multiple levels of aggregation	WP1.2	IIASA	**RE**
D1.2.2	Demographic projections for all EU-25 countries	WP1.2	IIASA	**PU**
D1.2.3	Demographic projections for NUTS2 regions in EU countries based on national probabilistic population projection	WP1.2	IIASA	**PU**
D1.2.4	Report on effects of an ageing population in terms of urban development and retirement migration. This report will discuss the regional population projections and its social impacts.	WP1.2	IIASA	**PU**
D1.2.5	Demographic projections at the local level for case study regions	WP1.2	IIASA	**RE**
D1.3.1	Report on environmental resource baseline profile (including air, biodiversity, soil, water) to understand the impact of environmental drivers on peri-urban land use relationships	WP1.3	UOM	**PU**
D1.3.2	Report on M1 scenario framework to consider future drivers of change on peri-urban land use relationships	WP1.3	UOM	**PU**
D1.3.3	Report on the impact of environmental drivers (climate change, environmental sectors, environmental pressures) on peri-urban land use relationships	WP1.3	UOM	**PU**
D1.4.1	Typology of regional and local driving forces acting	WP1.4	ZALF	**PU**

Del. no.	Deliverable name	WP no.	Lead contr.	Dissemination level
	on the generic urban region types			
D1.4.2	Future projections of technological change, including the transport network density, travel times and the ratio of the urban to rural population in EU27, 2015 & 2025	WP1.4	UEDIN	**PU**
D1.4.3	A database and maps of the land use change scenario projections for EU27; 2015 & 2025; 1 km resolution, comparison of the scenario projections by RUR, by Country through land use fractions and conclusions	WP1.4	UEDIN	**PU**
D2.1.1	Review of existing rural-urban region typologies	WP2.1	IGIPZPAN	**PU**
D2.1.2	List of generic rural-urban region types	WP2.1	ARC	**RE**
D2.1.3	Quantitative classification of the major European rural-urban regions	WP2.1	ARC	**PU**
D2.1.4	Report on a methodology to delineate sub-regions	WP2.1	ARC	**RE**
D2.2.1	Preparation of "national reports" for all the 27 EU countries, for their formal government structures, and their national planning systems, with emphasis on the sub-national level.	WP2.2	MRI*	**PU**
D2.2.2	Review of further instruments with indirect effect on regulation of peri-urban land uses, e.g., financial means, housing subsidies, transportation pricing, distributing income tax.	WP2.2	MRI	**PU**
D2.3.2	Compilation of WP2.3 indicators and approach for their integration	WP2.3	ZALF	**PU**
D2.3.3	Report on response functions for population and household structure	WP2.3	ARC	**PU**
D2.3.4	Report on response functions for social issues (aging, education, ethnic aspects, social equity)	WP2.3	ECA	**PU**
D2.3.5	Report on response functions for housing, infrastructure: network needs	WP2.3	CEMAGREF	**PU**

Del. no.	Deliverable name	WP no.	Lead contr.	Dissemination level
D2.3.6	Report on response functions for economic development, work places	WP2.3	IGIPZPAN	**PU**
D2.3.7	Report response functions for transportation and commuting	WP2.3	SYKE	**PU**
D2.3.8	Report on response functions for energy consumption and air pollution (urban / traffic emissions and exposure)	WP2.3	ARC	**PU**
D2.3.9	Modelling approach for response functions on agricultural production, ecological regulation and recreation function	WP2.3	ZALF	**PU**
D2.3.11	Scenario maps on population	WP2.3	ARC	**PU**
D2.3.12	Scenario maps on working places and economy	WP2.3	IGIPZPAN	**PU**
D2.3.13	Scenario maps on emissions	WP2.3	ARC	**PU**
D2.3.14	Scenario maps on agriculture and open space	WP2.3	ZALF	**PU**
D2.4.1	Review of policy options of how to control rural – peri-urban – urban relationships in order to steer the development of Rural-Urban Regions and which instruments are used to conduct planning on a spatially explicit level of Rural-Urban Regions.	WP2.4	KU	**PU**
D2.4.2	Procedures and protocols to upscale results from high-resolution spatially-explicit development scenarios that can be found in the PLUREL-case-studies or in MOLAND – simulations to the a generic level of the three units of rural-urban regions: rural - peri-urban – urban	WP2.4	EC-DG JRC	**PU**
D2.4.3	Spatially-explicit development scenarios for Leipzig, Haaglanden, Montpellier & Koper (delivered jointly by M2, M3, M4). Deliverable include summary of effects of policy, as well as summary of effects by the three sub-regions (rural – peri-urban – urban)	WP2.4	EC-DG JRC	**PU**

Del. no.	Deliverable name	WP no.	Lead contr.	Dissemination level
D2.4.5	Economic evaluation of the land-use transport relationship in the European region	WP2.4	UBATH	**PU**
D3.2.1	Research framework for Module 3 / Joint Analytical framework, update	WP3.2	Alterra	**PU**
D3.2.2	Documentation of European stakeholder workshop	WP3.2	Alterra	**RE**
D3.3.1	Reports on regional planning and decision making and its impact on land use in the urban fringe, Haaglanden report	WP3.3	Alterra	**PU**
D3.3.2	Reports on regional planning and decision making and its impact on land use in the urban fringe, Montpellier report	WP3.3	CEMAGREF	**PU**
D3.3.3	Reports on regional planning and decision making and its impact on land use in the urban fringe, Greater Manchester report	WP3.3	UOM	**PU**
D3.3.4	Reports on regional planning and decision making and its impact on land use in the urban fringe, Warsaw report	WP3.3	IGIPZPAN	**PU**
D3.3.5	Reports on regional planning and decision making and its impact on land use in the urban fringe, Koper report	WP3.3	UL	**PU**
D3.3.6	Reports on regional planning and decision making and its impact on land use in the urban fringe, Leipzig report	WP3.3	UFZ	**PU**
D3.3.7	Reports on regional planning and decision making and its impact on land use in the urban fringe, Hangzhou report	WP3.3	KU	**PU**
D3.3.10	Instruments and strategies for sustainable land use in peri-urban areas (integration of WP2.2, WP2.4 and Module 3 results)	WP3.3	MRI	**PU**
D3.3.15 - 3.3.21	Workshops in the case study regions on planning and decision making and its impact on land use in	WP3.3	Alterra	**RE**

Del. no.	Deliverable name	WP no.	Lead contr.	Dissemination level
	the urban fringe (Month 20, 21, 22)			
D3.3.8	Assessment of European regional governance and government approaches to maintain green open space in the urban fringe	WP3.3	Alterra	**PU**
D3.3.9	A historical analysis of cases, context and functional causes of transitions and the way these transitions were supported by planning and management	WP3.3	RuG	**PU**
D3.4.1	Outline for discussion and transplantation of Module 3 strategies to the different types of regions (reformulated, former "of Module 2 provided generic scenarios in each case study region")	WP3.4	Alterra	**RE**
D3.4.11	GIS Peri-urban Landscape Services: Attractiveness and Recreation	WP3.4	Alterra	**PU**
D3.4.2	Workshop on typology of urban regional dynamics in Europe and development of enhanced strategies and decision making	WP3.4	Alterra	**RE**
D3.4.3	Reports on enhanced planning strategies and decision making for urban fringes including scenarios for future land use development, Haaglanden report	WP3.4	Alterra	**PU**
D3.4.4	Reports on enhanced planning strategies and decision making for urban fringes including scenarios for future land use development, Montpellier report	WP3.4	CEMAGREF	**PU**
D3.4.5	Reports on enhanced planning strategies and decision making for urban fringes including scenarios for future land use development, Greater Manchester report	WP3.4	UOM	**PU**
D3.4.6	Reports on enhanced planning strategies and decision making for urban fringes including scenarios for future land use development, Warsaw report	WP3.4	IGIPZPAN	**PU**

Del. no.	Deliverable name	WP no.	Lead contr.	Dissemination level
D3.4.7	Reports on enhanced planning strategies and decision making for urban fringes including scenarios for future land use development, Koper report	WP3.4	UL	**PU**
D3.4.8	Reports on enhanced planning strategies and decision making for urban fringes including scenarios for future land use development, Leipzig report	WP3.4	UFZ	**PU**
D3.4.9	Reports on enhanced planning strategies and decision making for urban fringes including scenarios for future land use development, Hangzhou report	WP3.4	TUM	**PU**
D4.1.1a	FAQ by regional stakeholders (numbering?)	WP4.1	UFZ	**PU**
D4.1.1b	Systematic compilation and review of existing methodologies in system dynamics approaches	WP4.1	UFZ	**PU**
D4.1.2	Conceptual and quantitative system dynamics integrated framework to analyse rural-urban land use relationships including growth and shrinkage in a generic way - output is in form of a conceptual and quantitative system dynamics model which can be used for demonstration purposes	WP4.1	UFZ	**PU**
D4.1.3	Conceptual and quantitative system dynamics integrated framework to analyse rural-urban land use relationships including growth and shrinkage in the case study region Leipzig-Halle.	WP4.1	UFZ	**PU**
D4.2.1	Renamed: Conceptual description of agent-based models to incorporate the decision making process regarding land use change in rural-urban regions	WP4.2	UEDIN	**PU**
D4.2.2	Conceptual and implemented agent-based model for a generic Rural-Urban Region to analyse	WP4.2	UEDIN	**PU**

Del. no.	Deliverable name	WP no.	Lead contr.	Dissemination level
	the influence of communication patterns on urban land use change - output is in form of a conceptual description and Java-based implementation of the model			
D4.2.3	Report on location patterns of business agents in the rural-urban system	WP4.2	AKF	**PU**
D4.3.1	Indicator framework for evaluating impacts of land use changes on environmental, economic and social indicators - output is a report including lists of key indicators, description of the selection process, and fact sheets on each indicator (quantification, significance for Rural-Urban Regions)	WP4.3	CAU	**PU**
D4.3.2	Results of impact assessment for selected case studies - output is in form of tables, verbal descriptions, rural-urban gradients and spidergrams for all dimensions of sustainability	WP4.3	UFZ	**PU**
D4.3.3	Questionnaire for Quality of Life in Rural-Urban Regions applied to selected case studies - output is in form of a questionnaire and results for the case studies, integrated into a preference simulator	WP4.3	ECA	**RE**
D4.4.1	Report on the monetary valuation of the urban, peri-urban and rural service supply	WP4.4	ZEW	**PU**
D4.4.2	Methodology development for cost-benefit analysis of policy implementation	WP4.4	ZEW	**PU**
D4.4.3	Application of a developed methodology for Cost-Benefit-Analysis (CBA) to different policy-relevant land use scenarios – output is in form of a report and quantitative results of the CBA procedure application in the case studies.	WP4.4	UBATH	**PU**

Del. no.	Deliverable name	WP no.	Lead contr.	Dissemination level
D4.4.4	Pan-European spatially explicit model linking land use changes with socioeconomic indicators - output is in form of an interactive spreadsheet.	WP4.4	UEDIN	**PU**
D4.4.5	Choice Experiment Internet Based Questionnaire - similar for each case study where possible to allow for comparability:	WP4.4	QUB	**RE**
D5.1.1	A web-based internal map data warehouse - first version	WP5.1	EC-DG JRC	**RE**
D5.1.5	Land use change balance calculation at RUR level, development and setup of a land use change simulation map "explorer" for peri-urban land use changes in European Rural-Urban Regions	WP5.1	ARC	**PU**
D5.2.1	Interactive Impact Analysis Tool based on Multi Criteria Assessment for key indicators at pan-European level - output is in form of a report describing the method, results of the stakeholder workshops and spidergrams including weightings and threshold values	WP5.2	ZALF	**PU**
D5.2.2	Interactive Impact Analysis Tool based on Multi Criteria-Assessment for key indicators at case study level - output is in form of a report describing the method, results of the stakeholder workshops and spidergrams including weightings and threshold values. (Month 45)	WP5.2	UFZ	**PU**
D5.3.1b	Conceptual framework for SIAT-RUR: Sustainability Impact Assessment in rural-urban regions	WP5.3	ZALF	**RE**
D5.3.1a	Concept for PLUREL Xplorer	WP5.3	ZALF	**PU**
D5.3.2	PLUREL XPLORER dissemination platform based on fact sheets of PLUREL products.	WP5.3	ZALF	**PU**
D5.4.3	Book for practitioners (to	WP5.4	TUM	**PU**

Del. no.	Deliverable name	WP no.	Lead contr.	Dissemination level
	be delivered as document ready for submission to publisher)			
D5.4.5	Policy brochure	WP5.4	MRI	**PU**
D5.5.1	MOLAND version for discussion with the PLUREL team and the stakeholders that includes 2 PLUREL case studies: Manchester and Warsaw together with a proposal for the MOLAND LIGHT system	WP5.5	RIKS	**RE**
D5.5.2	MOLAND LIGHT version with generic parameter setting for each RUR region in EU27	WP5.5	RIKS	**PU**
D6.1.1	Budget plans for all modules and partners	WP6.1	KU	**RE**
D6.1.2	Gender Action Plan	WP6.1	KU	**RE**
D6.2.1	Specified Implementation Plan	WP6.2	KU	**RE**
D6.2.2	Analysis of workflow: plan for the first 18 months and beyond	WP6.2	KU	**RE**
D6.2.3	Short summary report on the relevance of the emerging results to the policies at the EU, national, regional and local level (second version)	WP6.2	KU	**RE**
D6.3.1	Detailed meeting plan	WP6.3	KU	**RE**
D6.3.2	Minutes and reports of meetings at different level (annually)	WP6.3	KU	**RE**
D6.3.2	Minutes and reports of meetings at different level (annually)	WP6.3	KU	**RE**
D6.3.2	Minutes and reports of meetings at different levels: General Assembly, Scientific Coordination Team, Project Management Board, Scientific Advisory Group, and Board of Stakeholders (annually)	WP6.3	KU	**RE**
D6.3.2	Minutes and reports of meetings at different levels: General Assembly, Scientific Coordination Team, Project Management Board, Scientific Advisory Group,	WP6.3	KU	**RE**

Del. no.	Deliverable name	WP no.	Lead contr.	Dissemination level
	and Board of Stakeholders (annually)			
D6.3.3	International Conference, Managing the Urban Rural Interface, 18-21 October 2010, Copenhagen	WP6.3	KU	**RE**
D6.4.1	Accessible website	WP6.4	KU	**RE**
D6.4.2	PLUREL Newsletter 1	WP6.4	KU	**PU**
D6.4.2	PLUREL Newsletter 2	WP6.4	KU	**PU**
D6.4.2	PLUREL Newsletter 3	WP6.4	KU	**PU**
D6.4.2	PLUREL Newsletter 4	WP6.4	KU	**PU**
D6.4.2	PLUREL Newsletter 5	WP6.4	KU	**PU**
D6.4.2	PLUREL Newsletter 6	WP6.4	KU	**PU**
D6.4.2	PLUREL Newsletter 7	WP6.4	KU	**PU**
D6.4.2	PLUREL Newsletter 8	WP6.4	KU	**PU**
D6.4.3a	Design program for PLUREL products	WP6.4	KU	**RE**
D6.4.3b	Publication strategy for PLUREL	WP6.4	KU	**RE**
D6.4.4a	Detailed dissemination and exploitation plan	WP6.4	KU	**RE**
D6.4.4b	Business plan for dissemination and promotion of core end-products: PLUREL xplorer, printed matter, training and teaching materials	WP6.4	KU	**RE**
D6.5.1	Publication of cross-cutting papers on social and economic aspects	WP6.5	UBATH, UOM	**PU**

Scientific publications – status May 2011

2007

Peer review	Part.	Date of publication	Title, authors	Name of journal or proceedings
yes	UFZ	Feb 2007	Monitoring and Modelling Indicators for Urban Shrinkage; Banzhaf, E., Kindler, A., Haase, D.	EARSeL eProceedings, Volume 6, 101-114
yes	UFZ	Apr 2007	Does urban sprawl drive changes in the water balance and policy? The case of Leipzig (Germany) 1870-2003; Haase, D., Nuissl, H.	Landscape and Urban Planning, Volume 80, 1-13
yes	UFZ	Apr 2007	Changes to Saxon landscapes - analysing historical maps to approach current environmental issues.; Haase, D., Walz, U., Neubert, M., Rosenberg, M.	Land Use Policy, Volume 24, 248-263
yes	SYKE	Sep 2007	The relation between commuting distance, frequency and telework in Finland; Helminen Ville, Ristimäki Mika	Journal of Transport Geography
yes	UFZ	2007	Multi-criteria assessment of socio-environmental aspects in shrinking cities. Experiences from Eastern Germany; Schetke, S., Haase, D.	Env Impact Ass Review (in press)
yes	UFZ	2007	Urban ecology of shrinking cities: an unrecognised opportunity?; Haase, D.	Nature and Culture (in press)
no	UFZ	Aug 2007	A new housing demography under conditions of shrinkage? A household-based model approach to conceptualise residential mobility and residential vacancy.; Haase, D.	Landschafts-entwicklung und Umwelt-forschung, Volume 20, 479-482
no	UFZ	Aug 2007	Integrated assessment of land resources and land consumption in urban regions.; Nuissl, H., Haase, D.	Landschafts-entwicklung und Umwelt-forschung, Volume 20, 133-136
no	ZALF	Nov 2007	Developing an Impact Assessment Tool for rural-urban land use relationships. ; Fricke K. and Helming K.	In: Pintar et al (eds.): Multifunctional land use in the rural-urban perspective. Proceedings. 11. Bled, Slovenia.
no	ZALF	Nov 2007	Quantifying impacts caused by land use change due to peri-urbanisation on recreational open space and regional recreation potentials: a methodology to develop landscape response functions in the PLUREL project; Zasada, I., Müller, F., Piorr, A., Toussaint, V., Werner, A., Müller, K., Helming, K., Fricke, K.	In: Pintar et al (eds.): Multifunctional land use in the rural-urban perspective. Proceedings. 37-38. Bled, Slovenia.

PLUREL related scientific papers and journal articles in 2008

Peer review	Part.	Date of publication	Title, authors	Name of journal or proceedings
yes	AIT/ ARC	Jan 08	Henning H S, Loibl W, Peters-Anders J, Zudin S, Voigts J: Requirements for data management and maintenance to comfort landscape related research, in: Helming, K; Pérez-Soba, M Tabbush P (Eds.) (2008), Sustainability Impact Assessment of Land Use Changes. Springer,	Book
yes	AIT/ ARC	Aug 08	Loibl W., Steinnocher K, Köstl M., Typology of urban regions observing the distribution of urban centres and recent regional dynamics in Europe 27 - a Spatial and Statistical Analysis; ERSA 48th conference proceedings, Liverpool, 2008	ERSA Conference proceedings, European regional science association,
yes	IGIPZ-PAN	2008	Piotr Korcelli : Transformation of urban-rural regions in Europe (in:) The socio-economic region and regional development	Bogucki Wyd. Naukowe
yes	IIASA	2008	Skirbekk, V.: Fertility trends by social status.	Demographic Research
yes	IIASA	2008	Skirbekk, V.: Age and Productivity Potential: A New Approach Based on Ability Levels and Industry-Wide Task Demand.	Population and Development Review
yes	UFZ	2008	Nuissl, H., Haase, D., Wittmer, H., Lanzendorf, M. 2008. Impact assessment of land use transition in urban areas – an integrated approach from an environmental perspective.	Land Use Policy
yes	UFZ	2008	Schetke, S., Haase, D. 2008. Multi-criteria assessment of socio-environmental aspects in shrinking cities. Experiences from Eastern Germany.	Environmental Impact Assessment Review 28, 483-503
yes	UFZ	2008	Haase, D., Haase, A., Bischoff, P., Kabisch, S., 2008. Guidelines for the 'Perfect Inner City' Discussing the Appropriateness of Monitoring Approaches for Reurbanisation.	European Planning Studies 16(8)
yes	UFZ	2008	Haase, D., 2008. Urban ecology of shrinking cities: an unrecognised opportunity?	Nature and Culture 3, 1-8.
yes	UFZ	2008	Haase, D., Haase, A., 2007. Do European social science data serve to feed agent-based simulation models on residential mobility in shrinking cities?	In: Grözinger, G., Matiaske, W., Spieß, K. (eds.) Europe and its Regions. The usage of European Regionalised Social Science Data. Cambridge Scholar Publishing, pp 227-250
no	KU	May 08	Nilsson KSB, Nielsen TAS, Pauleit S, Ravetz J, Rounsevell M. Keynote-	FAU-conference 2008: Cities, Climate

Peer review	Part.	Date of publication	Title, authors	Name of journal or proceedings
			paper: Urban development scenarios - Experiences from the PLUREL project.	Change and Development; The Association of Development Researchers in Denmark. 2008, 19-23
no	KU	May 08	Nielsen TAS. Development scenarios as a frame for facing challenges - the PLUREL project.	FAU-conference 2008: Cities, Climate Changes and Development; The Association of Development Researchers in Denmark. 2008, 96-97
no	KU	Dec 08	Nilsson KSB, Nielsen TAS, Pauleit S: a plurel approach to peri-urban areas	Town and Country Planning
no	IIASA	2008	Skirbekk, V.: Age and Productivity Capacity: Descriptions, Causes and Policy Options.	Ageing Horizons (reprint appeared in Belgian journal Over.Werk, by labour economics research centre Steunpunt Werk en Sociale Economie).
no	IIASA	2008	Scherbov, S., M. Mamolo, W. Lutz: Probabilistic Population Projections for the 27 EU Member Countries Based on Eurostat Projections.	European Demographic Research Papers, No. 2 (Vienna Institute of Demographyof the Austrian Academy of Sciences)
no	UOM	2008	Green C N: City-states and the spatial in-between	Town & Country Planning
no	EC-DG JRC	In press	Escobar, F. and Lavallle, C.: Cellular Automata and Geographic Information Technologies in peri-urban land use modelling	XIII Congreso Nacional de Tecnologías de la Información Geográfica

2009

Peer review	Part.	Date of publication	Title, authors	Name of journal or proceedings
Yes	IGIPZ-PAN	May 2009	Miroslaw Grochowski: Territorial Self Government and Sustainable Development of Metropolitan Areas (Samorząd terytorialny a rozwój zrównoważony obszarów metropolitalnych),	Mazovia. Regional Studies (Mazowsze. Studia Regionalne), No. 2
Yes	IGIPZ-PAN	Jun 2009	Piotr Korcelli, Ewa Korcelli-Olejniczak, Elżbieta Kozubek: Typologies of European Urban – Rural Regions: a Review and Assessment.	Geographia Polonica, vol. 81, no 2, pp. 25-42
Yes	Atelier	Dec 2009	Buyck J "Paysage et Schémas de	Cahiers Thématiques

Peer review	Part.	Date of publication	Title, authors	Name of journal or proceedings
	Alfred Peter		Cohérence Territoriale: le cas de Montpellier"	n°9 : Paysage, Territoire et Reconversion
Yes	Atelier Alfred Peter	Dec 2009	Buyck J "Paysage en images, Urbanité en questions"	Revue DEMéter
Yes	CAU	Dec 2009	Burkhard, Kroll, Müller, Windhorst: Landscape's capacities to provide ecosystem services – a Concept for Land Cover based assessments	Landscape Online
Yes	IGIPZ-PAN	Dec 2009	Miroslaw Grochowski: City and Functional Urban Area – New Dimension of City's Functioning (Miasto a funkcjonalny obszar zurbanizowany – nowy wymiar funkcjonowania miasta)	Proceedings: Conference on Polish Cities (Miasta Polski), Lublin, May 2009
Yes	AIT/ ARC	2009	Tötzer, T., & Loibl W, Ansprüche einer alternden Bevölkerung an Wohnen, Wohnumfeld und Mobilität - Zukunftsthemen für die Wiener Stadtpolitik.	Book: Hanappi-Egger, E., Schnedlitz, P. (Hrsg.), Ageing Society, Altern in der Stadt, Facultas.wuv, 606-662
Yes	AIT/ ARC	2009	Tötzer, T., Loibl, W. und Steinnocher, K. , Flächennutzung in Österreich, jüngere Vergangenheit und künftige Trends.	Wissenschaft und Umwelt, 12, 8-20
Yes	KU	2009	Nilsson KSB, Nielsen TAS, Pauleit S. Integrated European research on sustainable development and peri-urban land use relationships. Urbanistica. 2009, 138:106-110.	Urbanistica. 2009, 138:106-110.
Yes	UFZ	2009	Haase D, Schetke S: Potential of biodiversity and recreation in shrinking cities: contextualisation and operationalisation	Blackwell Academic Publishing "Conservation Science and Practice Series"
Yes	UFZ	2009	Haase D, Schwarz N: Simulation models on human-nature interactions in urban landscapes – a review including system dynamics, cellular automata and agent-based approaches	Living Reviews in Landscape Research 3, 2
Yes	UFZ	2009	Haase D: Effects of urbanisation on the water balance – a long-term trajectory	Environment Impact Assessment Review 29, 211-219
Yes	UFZ	2009	Kubal T, Haase D, Meyer V, Scheuer S: Integrated urban flood risk assessment – transplanting a multicriteria approach developed for a river basin to a city	Nat. Hazards Earth Syst. Sci. 9, 1881-1895
Yes	UFZ	2009	Strohbach, M, Haase, D, Kabisch, N: Birds and the city - urban biodiversity, land-use and socioeconomics	Ecology and Society 14(2), 31
Yes	UOM	2009	Everard, M and Ravetz, J (2009): Ecosystem services – Joined up thinking in an interdependent world:	Environmental Scientist (Special issue on environmental

Peer review	Part.	Date of publication	Title, authors	Name of journal or proceedings
				futures), July 2009, pp15-20
Yes	UOM	2009	Roberts, P.R, Ravetz, J, and George, C (2009): Environment and the City: Critical Perspectives on the Urban Environment around the world.	Routledge
No	RUG	Jan 2009	W.S. - A non-linear perspective on peri-urban developments	Presented at AESOP Congress Liverpool
No	RUG	May 2009	S. Hartman – Ruimtelijke dynamiek in de regio Haaglanden; Worstelen met dromen en de werkelijkheid	Tussen droom en werkelijkheid : Plandag 2009
No	RUG	May 2009	W.S. Rauws – Ruimtelijke strategieën in peri-urbane gebieden. Een brug tussen droom en werkelijkheid: een non-lineair perspectief?	Tussen droom en werkelijkheid : Plandag 2009
No	VHL	Jul 2009	Timmermans, W., 2009: The complex planning of innovation	WIT Transactions on Ecology and the Environment, vol 122. WITPress. Southampton. Pp 581 – 590.
No	RUG	Jul 2009	M.J. Beeftink – Spatial planning and transitions in Warsaw's peri-urban area	Presented at AESOP congress Liverpool
No	IIASA	2009	Buber, I., Engelhardt, H., Prskawetz, A., and V. Skirbekk. (2009) "Soziales Engagement hält Senioren geistig fit", 6, Nr. 2	Demographische Forschung aus Erster Hand
No	UFZ	2009	Haase D, Petrov L: Landnutzungsszenarien für die Stadtregion Leipzig-Halle	Statistischer Quartalsbericht/Stadt Leipzig 1, S. 22-25
No	UFZ	2009	Kubal T, Haase D: Hochwasserrisiko in Leipzig	Statistischer Quartalsbericht/Stadt Leipzig 1, S. 6-11
No	ZALF	2009	Diehl, K. ; Helming, K.: Nachhaltige Landnutzung durch vorausschauende Politik.	Ökologisches Wirtschaften 2: 30-34

2010 & 2011 (status April 2011)

Peer review	Part.	Date of publication	Title, authors	Name of journal or proceedings
Yes	AIT/ ARC	2010	Loibl W, Walz A, Generic regional development strategies from local stakeholders' scenarios	Ecology & Society
	ECA	2010	Migration and Land Use Change in Europe: A Review: Bell S., Alves S, Silverinha de Olivera E, Zuin A	Living Reviews of Landscape Research 4 (2010) 2
	KU	2010	Madsen MF, Kristensen SBP, Fertner C, Busck AG, Jørgensen G: Urbanisation of rural areas: A case study from Jutland, Denmark	Danish Journal of Geography

Peer review	Part.	Date of publication	Title, authors	Name of journal or proceedings
	UFZ	2010	Schwarz, N.: Urban form revisited – Selecting indicators for characterising European cities	Landscape and Urban Planning
	UFZ	2010	Haase D: Spatial projections Germany 2025-2050	Die Erde, 141(1-2), 14
	UFZ	2010	Haase D: Die ökologische Aufklärung. Warum der Mensch von einer Falle in die nächste tappt. Book review	GAIA 19(4), 297
	UFZ	2010	Haase D, Nuissl H: Assessing the impacts of land use change on transforming regions. Editorial	Land Use Science 5(2), 67-721
	UFZ	2010	Haase D, Nuissl H: The urban-to-rural gradient of land use change and impervious cover: a long-term trajectory for the city of Leipzig	Land Use Science 5(2), 123-142
	UFZ	2010	Schetke S, Haase D, Breuste J: Green space functionality under conditions of uneven urban land use development	Land Use Science 5(2), 143-158
	UFZ	2010	Haase D, Lautenbach S, Seppelt R 2010: Applying social science concepts: modelling and simulating residential mobility in a shrinking city	Environmental Modelling and Software 25, 1225-1240
	UFZ	2010	Haase D, Schetke S: Potential of biodiversity and recreation in shrinking cities: contextualisation and operationalisation. In: Müller N, Werner P, Kelcey JG (eds) Urban Biodiversity and Design	Blackwell Academic Publishing "Conservation Science and Practice Series" No.7, pp 518-538
	UOM	2010	Douglas I, Ravetz J; Urban ecology: the bigger picture:	In : Niemelä, J, Breuste, J.H, Guntenspergen, G, McIntyre N.E, Elmqvist, T, and James, P (Eds): Urban Ecology: Patterns, Processes, and Applications: Oxford University Press
	ZALF, ECA	2010	International Retirement Migration in the Alicante Region, Spain: Process, spatial Pattern and environmental Impacts. Zasada I, Alves S, Müller FC, Piorr A, Berges R, Bell S	Journal of Environmental Planning and Management. 53:1 125-141
	IGIPZ-PAN	Jun 2010	M. Grochowski: Samorząd na obszarach metropolitalnych (Self Government in Metropolitan Areas)	Samorząd Terytorialny
	Atelier Alfred Peter	Jul 2010	Buyck J, Dessiner la campagne pour dessiner la ville	*Projets de paysage*
	IGIPZ-PAN	Oct 2010	P. Korcelli, E. Kozubek: Regiony miejsko-wiejskie w krajach europejskich, ujęcia typologiczne (Urban-rural regions in European countries – typological approaches)	Book chapter in Przekształcenia Struktur Regionalnych: aspekty społeczne, ekonomiczne i

Peer review	Part.	Date of publication	Title, authors	Name of journal or proceedings
				przyrodnicze (Transformation of regional structure: social, economic and environmental aspects). Wrocław University Press 2010
	Atelier Alfred Peter	Dec 2010	Buyck J, Paysans de Paris : Vers une mythologie urbaine contemporaine	*Cahiers Thématiques* n°10
	CAU	Dec 2010	Kroll, F., Kabisch, N.: The relation of diverging urban growth processes and demographic change along an urban-rural gradient	Population, Space and Place
	IGIPZ-PAN	Dec 2010	M. Grochowski: Miasto a funkcjonalny obszar zurbanizowany – nowy wymiar funkcjonowania miasta (City and Functional Urban Area – a New Dimension of the City's Functioning)	Chapter in book; Published by PTS and WSPA, Lublin
	IGIPZ-PAN	Dec 2010	M. Grochowski, M. Pieniążek: Suburbanizacja w obszrach metropolitalnych (Suburbanization in Metropolitan Areas)	Book chapter in: Dynamika i skutki procesów urbanizacji w regionach miejskich po 1990 roku (Dynamics and results of urbanization provesses in Poland after 1990), University of Łódź Press
	IGIPZ-PAN	Dec 2010	E. Korcelli-Olejniczak: Kształtowanie się regionu metropolitalnego Warszawy w świetle analizy zasięgu działalności przedsiębiorstw sektora zaawansowanych usług (Warsaw metropolitan region In the process of making. An analysis of activity range of advanced service sector firms)	Przegląd Geograficzny (Polish Geographical Review) vol. 82, no 4.
	UL	Dec 2010	PERPAR, Anton, MUBAREKA, Sarah, DERANJA, Davor, UDOVČ, Andrej, PINTAR, Marina. = Projections of future land use in the Municipality of Koper based on the MOLAND model (in Slovene)	*Geod. Vestn.* 2010, 54/ 4, p. 676-689.,
	Atelier Alfred Peter	Jan 2011	Buyck J, Dousson X, Louguet P [dir.], Agriculture / Métropoles	Cahiers Thématiques n°11
	UOM	Feb 2011	Ravetz J: Peri-urban ecology: Green infrastructure in the twenty-first century metro-scape:	In: Douglas, I. Goode, D, Houck, M.C, Wang, R (Eds) The Routledge Handbook of Urban Ecology, Abingdon, Routledge
No	KU	2010	Nilsson KS, Nielsen TS: Towards green urban planning	World and European Sustainable cities. Insights from EU research; European Commission, Luxembourg:

Peer review	Part.	Date of publication	Title, authors	Name of journal or proceedings
				Publications Office of the European Union, 2010
	KU, UEDIN, UFZ, ZALF, AIT	2010	Nielsen TS, Nilsson, KS, Rounsevell M, Rickebusch, S, Haase D, Piorr A, Schwarz N, Zasada I, Peters-Anders J. Challenges of Urbanization and Peri-urban development in Europe: the contribution of the PLUREL project	UGEC viewpoints, no. 3, March 2010
	UFZ	2010	Haase D, Lorance ED: Gestattungsvereinbarungen: Zwischennutzungsform urbaner Brachen	Statistischer Quartalsbericht/Stadt Leipzig 1, S. 44-50
	VHL	Sep 2010	W. Timmermans & J. Jonkhof, 2010: Plurel	Out of the Box, kennisinnovatie in het groene onderwijs en onderzoek. VHL. Internal publication