ESPON

# EU-LUPA
# European Land Use Patterns

Applied Research 2013/1/8

## VOLUME V
## Case Studies
## Methodology and Regions Overview

**Part C Scientific report** |

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EUROPEAN UNION
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This report presents the final results of an Applied Research Project conducted within the framework of the ESPON 2013 Programme, partly financed by the European Regional Development Fund.

The partnership behind the ESPON Programme consists of the EU Commission and the Member States of the EU27, plus Iceland, Liechtenstein, Norway and Switzerland. Each partner is represented in the ESPON Monitoring Committee.

This report does not necessarily reflect the opinion of the members of the Monitoring Committee.

Information on the ESPON Programme and projects can be found on www.espon.eu

The web site provides the possibility to download and examine the most recent documents produced by finalised and ongoing ESPON projects.

This basic report exists only in an electronic version.

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# 1 Introduction

There are a large variety of European regions that represent the different land use management with different drivers of land use patterns. They represent variety of types located in geographical space. Land use has also a different regional dynamics due to social, economic and environmental development changes.

According to the EEA the type of land use change varies among different types of regions: *"Urban areas and related infrastructure are the fastest growing land consumers, mainly at the expense of productive agricultural land. Rural landscapes are changing due to agriculture intensification, land abandonment and forest exploitation. Coastal and mountain areas are undergoing profound spatial reorganizations to accommodate intensive tourism and leisure activities."*

The rationale behind using case studies as a one of the scientific method is to identify, conceptualise and theorise drivers and dynamic processes which are stimulated by specific land use changes on the macro and micro level. The cases shall differ in its features of e.g. endogenous potential of region (physical, human and social capital), its environmental, socio-economic and geographical assets.

The case studies are seen as essential elements to provide a better insight and confirm some of the main project findings taking the advantage of additional expertise with good local/regional knowledge.

Finally the major objectives of the case studies are:

- verify and confirm proposed typology and identified processes and challenges;
- identify land use functions and undertake a "multifunctionality" assessment;
- identify factors and drivers (natural and socio-economic) of land use changes and land use dynamics in details in different types of areas;
- give answer about mechanisms and trends (processes) of land use changes in local scale;
- identify challenges in those areas and defining policy recommendations to cope with those challenges on the basis of stakeholders opinion;

The pre-selection of the case studies was made based on the ESPON typologies with regard to represent specific and different geographical regions. The proper selection reduced the number of case studies on the base of worked out typology and data availability.

Separate case study reports are available in Volumes VI to IX. Case study land cover changes are developed in Volume X. Land change typology in the context of case studies can be found in Volume XI. Land use functions and indicator assessment for EU-LUPA case studies are developed in Volume XII.

# 2 Methodology

Four consistent steps can be distinguished in the Case Studies:

1. *Selection of the regions to be analyzed*
2. *Statistical survey and characterization of selected case regions*
3. *Identification of the drivers and dynamics of land use changes*
4. *Verification of the proposed typologies*

## 2.1 Selection of the regions analyzed

A two steps approach followed in order to identify the regions for the case studies. At the first step of case study selection – pre-selection – there were identified six areas (regions) as a potential cases for analysis from each partner perspective, interesting in relation to the topic of land use but also bearing to mind the availability of data and accessibility.

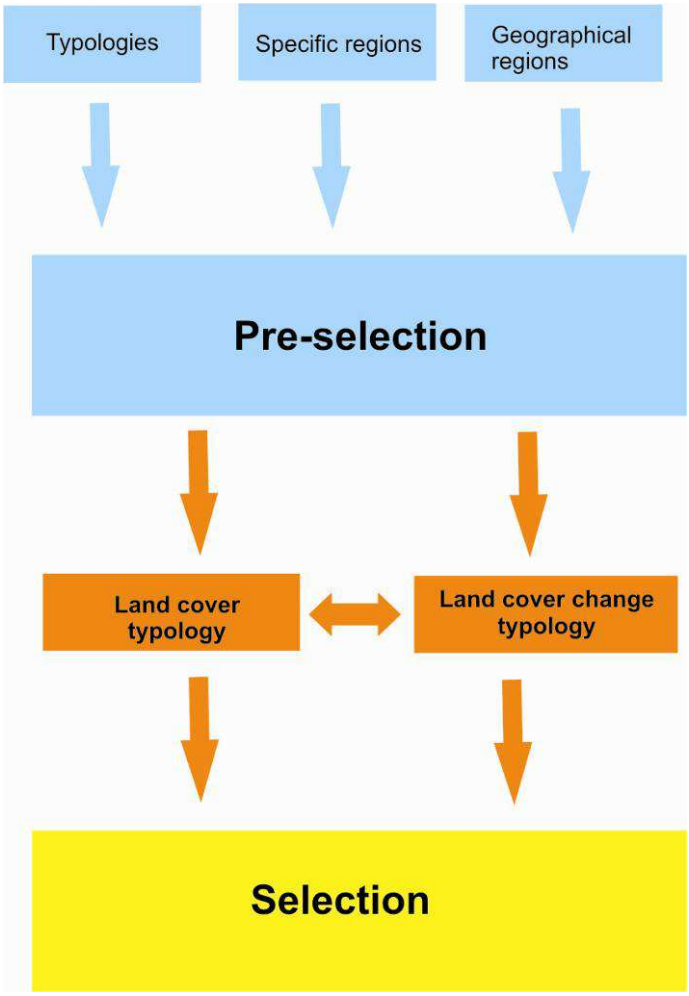


**Figure 1 Model of case sudies selection**

The pre-selection was based on partner expert knowledge, ESPON documents (eg. ESPON projects, ESPON Atlas, ESPON previous typologies) and Corine Land Cover Dynamic Regional

Clusters (draft) worked out as an element of Land Cover Typology study. Two main criteria for pre-selecting the case study regions were taken into account:

- the specific types of territories; it is intended to cover various types of regions (cross border regions, mountain areas, outermost regions, highly populated multifunctional areas),
- the geographical patterns: The pre-selected territories should represent various geographical regions (Western Europe, Mediterranean Europe, East-Central Europe, Nordic countries).


**Figure 2 Pre-slected case studies (regions NUTs3)**

| Case studies NUTS 3 | Cross border | Mountain area | Highly populated | Peripheral | Urban-rural open space | Costal |
|---|---|---|---|---|---|---|
| Öresund (Sweden/Denmark) | | | | | | |
| Thy/Mors (Denmark) | | | | | | |
| Jeleniogórski (Poland) | | | | | | |
| Chełmsko-Zamojski (Poland) | | | | | | |
| Amsterdam (The Netherlands) | | | | | | |
| San Sebastian (Spain) | | | | | | |

**Table 1 Pre-selected case studies according to basic types of regions.**

The pre-selected regions represent the different land use management with different drivers of land use patterns. They represent variety of types (cross-border, mountain areas, highly populated, coastal, peripheral, etc.) located in different geographical space (West, East, South and North Europe). Pre-selected regional land use has also a different dynamics due to social, economic and environmental development changes.

To each chosen regions were worked out a statistical profile with the identification of the land use changes direction and the main current socio-economic processes and actors with possible impact to land management and land cover change (see all of the profiles in appendix 1).

The second step - the proper selection reduced the number of case studies to four regions on the base of the typologies developed:

1) Land Cover Typology; the selected regions should represent various types of territories in the case of land use structure (urban area, arable land, woodland) and functions (from mono to multifunctional);
2) Land Cover Change Typology; the regions should represent the areas characterized by different dynamics and level of land cover changes (from less to high number of changed clusters).

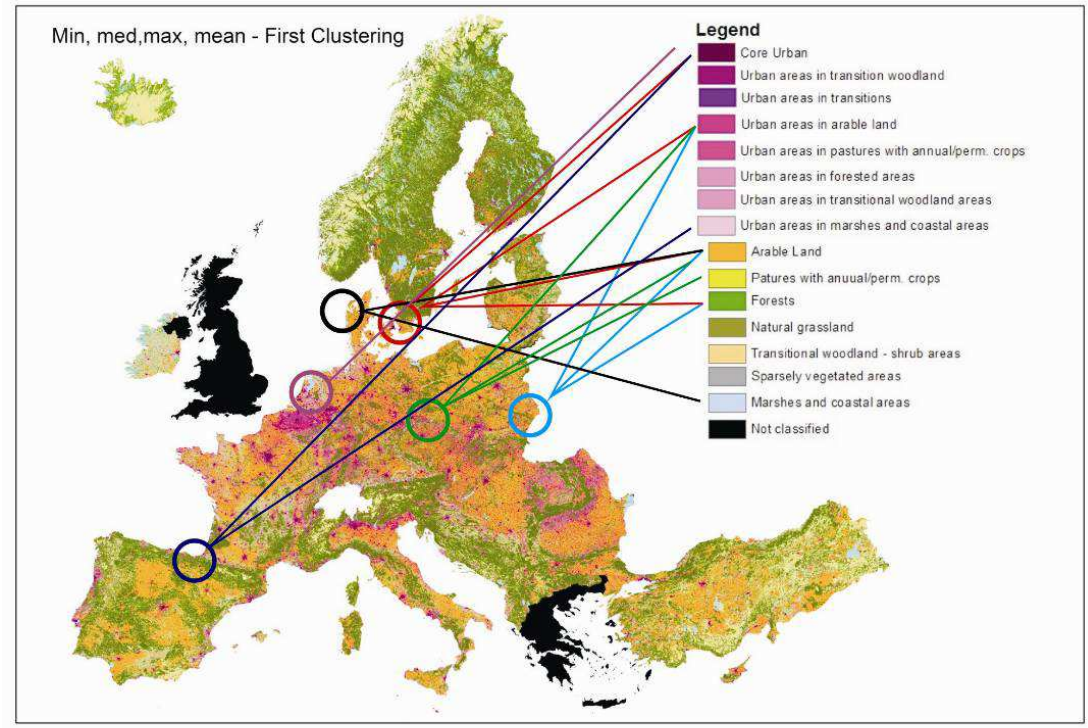


**Figure 3 Major type of land use according to Land Cover Typology**

| Case studies<br><br>NUTS 3 | Major type of land | Level of land use differentiation | Level of multifunctionality | Level of land use changes (nb. of clusters) |
|---|---|---|---|---|
| Öresund | urban/arable | **H** | **H** | **M** |
| Thy/Mors | arable | **L** | **L** | **L** |
| Jeleniogórski | arable/forest | **M** | **M** | **M** |
| Chełmsko-Zamojski | arable | **L** | **L** | **L** |
| Amsterdam | urban | **H** | **H** | **M** |
| Bayonne- San Sebastián | urban/semi-urban | **M** | **H** | **H** |

**Table 2 Qualitative evaluation of land use and land cover change in pre-selected regions (L-low, M-Medium, H- High)**

Finally, the proposed regions for carrying out case studies are:

1) Öresund – as cross-border region with highly differentiated land use structure (from urban core, semi-urban to arable), high multifunctionality and several clusters of land cover changes in the period 2000-2006;
2) Eurocity Basque Bayonne- San Sebastián - as cross-border region, with high share of urban areas and relatively high number of changed clusters in the period 2000-2006 (mainly agricultural), multifunctional;
3) Chelmsko-Zamojski – located on periphery (EU border), mostly agricultural, monofunctional, with low number of changed clusters;
4) Jeleniogórski – located on the Poland-Germany-Czech Republic borderland, multifunctional, in economic transition.

These selected diversified regions provide the possibility to find more trends and processes in land use and land cover changes and will facilitate the verification of proposed typology.

## 2.2 Statistical survey and characterization of selected case regions

At the first step the case study area was focused on the statistical profile of each region with the identification of the main current socio-economic processes and actors with possible impact to land management and land cover change.

Secondly the changes of the land use and land cover structure and they dynamics have been characterized. In each region major effect of the land use change (deforestation, desertification, soil degradation, biodiversity changes, urban sprawl, floods etc.) and dynamics of these changes identified.

Regional development strategies and other regional and state documents were analyzed according to land use policies and influences to land use changes. Other sources with influences to land use changes surveyed too, including interviews with local authorities and other important players.

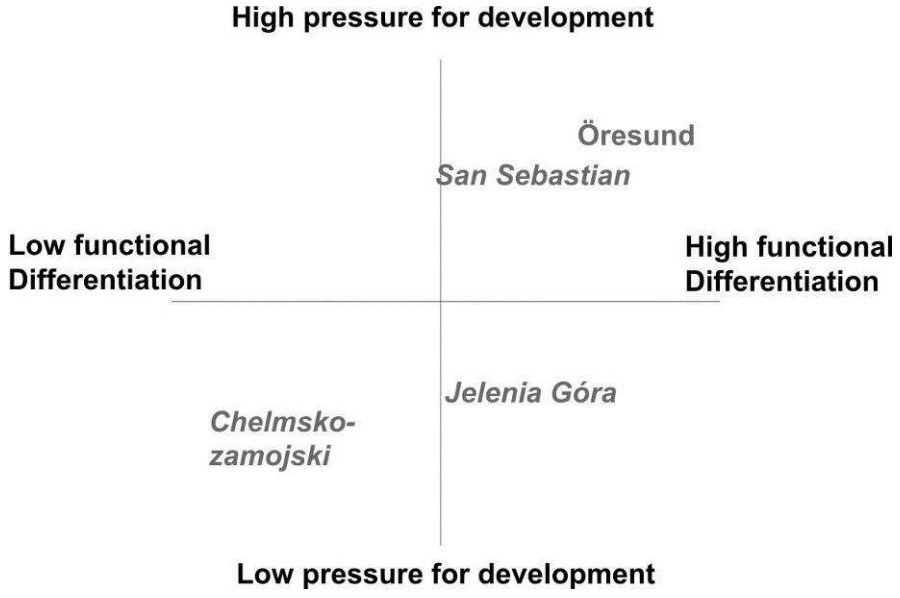


**Figure 4 Characterization of case study regions**

## 2.3 Identification of the drivers and dynamics of land use changes

This subtask synthesizes the findings in the case study regions in order to mirror them to land use changes and its dynamics. One of the most important results are detailed identification and evaluation of the drivers of land use and land cover changes. They make it possible to answer the mechanism and trends of land use changes as well as interrelation between different functions and factors in those changes.

## 2.4 Verification of the proposed typologies

Finally on the basis of mentioned analysis it was possible to validate proposed typologies and formulate chosen policy recommendations (on the basis of stakeholder's opinion).

In order to ensure the comparability of the investigated results in the selected regions a common design for all studies was formulated. The following aspects were take to account:

- a description for the relevant statistical data to be analysed. The statistical survey combines the statistical profile and added relevant data outlining the overall situation of the region. A questionnaire has been elaborated collecting standardised data.
- a potential stakeholders interview guide with the criteria of interviewees selection. In order to get information about the mechanism and tends of land use and land cover change and formulate recommendations, interviews with regional key player have been conducted. Criteria have been set up for the selection of them and a template for the case study report.

## 2.5 Technical description of the case studies research

There are five major elements in the case studies research (see Figure 5):

1. Region's general overview on the basis of literature, regional expertise, documents and other sources.
2. Collection of statistical data and statistical deep analysis of regions.
3. Collection and analysis of main policy documents, especially those related to spatial planning (law related to spatial planning, regional plans of spatial organization, regional socio-economic and investment plans) and planning system assessment.
4. Field study
    a. Personal in-depth interviews (3 regional experts + 1 members of TPG). In general, the stakeholders selected were: (1) representative of regional authority, (2) representative of "practice" – eg. farmers, tourism, business association (depending on the main economic function of the region, influencing significantly land use changes), (3) representative of regional research organizations (university, research institutes, etc.) dealing with regional development issues. See final version of interview questions in appendix 2.
    b. Field observation of current condition of land use (character of settlements, structure of agricultural land, industrial areas, tourism zones, natural areas, multifunctional land use etc.).

5. Reports (see appendix 3)

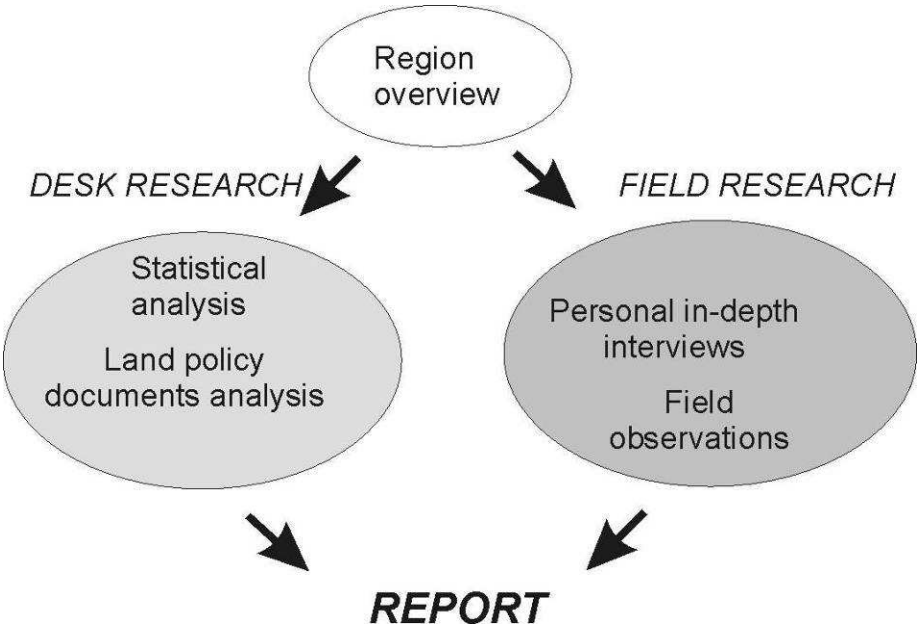


**Figure 5 Basic scheme of case study research**

# 3 App. 1

## Pre-selected regions characteristic

| Region Öresund | | | | | |
|---|---|---|---|---|---|
| **Location within Europe** | Nordic | Western | East-Central | Mediterranen | |
| | X | | | | |
| **Type of location** | Core | Transitional | Peripherral | | |
| | X | | | | |
| | Cross-border | Coastal | Mountain | | |
| | X | X | | | |

| **Size** | Inhabitants (nb.) | Density (nb./ km$^{2)}$ | Surface (km$^2$) | Pop. growth rate, 1990-2010 (increase/decrease/stabile) |
|---|---|---|---|---|
| | 3.600.000 | 170 | 21.203 | increase |

| **Qualitative description** |
|---|
| Cross-border region with important impact on land use of the bridge between Sweden and Denmark. The focus would be on the Swedish side where most changes have been registered.<br>The Öresund region is very interesting in the aspect of land use typologies with urban sprawl interaction, and consequently also with multifunctional activities as the following are taking place:<br>- Protected areas both on islands in the region, and on the Swedish mainland<br>- Agriculture, with South Sweden being the most intensive producing areas in Sweden<br>- A large number of renewable energy producers both individual and park based windmills, on both land and sea.<br>- In addition a high production of biomass for biogas, power and district heating generation. Especially on the Swedish side there are interactions and conflicts between agriculture and biomass production.<br>- High mobility between the Swedish and the Danish side, and with the bridge being the most important commuting tool, especially from the Swedish side<br>- Coastal communities where tourism and second homes from both sides are playing an important role<br><br>The region is an excellent illustration of the urban sprawl problem and since the bridge was erected the implications of urbanization from one country (the Danish side) on the land use patterns in another country (on the Swedish side) is obvious. |

| **Land use structure (%)** | Artificial surface | Agricultural land | Forested land | Water bodies |
|---|---|---|---|---|
| | | 38% (2009 – NUTS2) | 22% (2009 – NUTS2) | |

| **Major tendency in structure of land use in period 2000-2006 (2000=100%)** | Artificial surface | Agricultural land | Forested land | Water bodies |
|---|---|---|---|---|
| Increase (***A*** – above country level, ***B*** – below country level) | | - | - | |
| Decrease (***A*** – above country level, ***B*** – below country level) | | - | - | |
| Stable | | - | - | |

| **Dominant land use changes 1990-2006 (see Nordregio said nb. 23)** | Developed land area has increased at the expense of agricultural land |
|---|---|
| **Description of land use changes (other important information)** | 1) increase of built-up area<br>2) change land on wetland areas and forests |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Socio-economic level** | GDP per head | Index of unemployment | Share of high educated inhab. | Degree of urbanization (densely/intermed./thinly | | |
| | 49.000 Euro | 3 % (2009) | 30% | densely | | |
| **Regional functions** (2 – highly represented; 1 – represented; 0 – lack) | Agriculture | Forestry | Tourism and recreation | Settlement (Build up) | Industry | Others (administrative, education, etc.) |
| | 2 | 1 | 1 | 2 | 2 | 1 |
| **Other qualitative description of region** | This region is already part of Nordregio's research agenda, so accessing data, interviews etc. would be quite easy.<br>In relation to the aims of the case studies, this region will contribute by:<br>- Verify and confirm proposed typology and identified processes and challenges.<br>- Identify land use functions and undertake a "multifunctionality" assessment<br>- Identify factors and drivers (natural and socio-economic) of land use changes and land use dynamics in detail in different types of areas;<br>- Give answer about mechanisms and trends (processes) of land use changes at local scale;<br>Identify challenges in those areas and defining policy recommendations to cope with those challenges on the basis of stakeholdes opinion. | | | | | |
| **Major local and regional plan documents** | Programme Summary of the Oresund Region INTERREG IIIA PROGRAMME [http://event.interact-eu.net/download/application/pdf/1007227]<br><br>The Øresund Science Region: A cross-border partnership between Denmark and Sweden [http://www.oecd.org/dataoecd/55/50/37006070.pdf] | | | | | |

**Localization on the map**

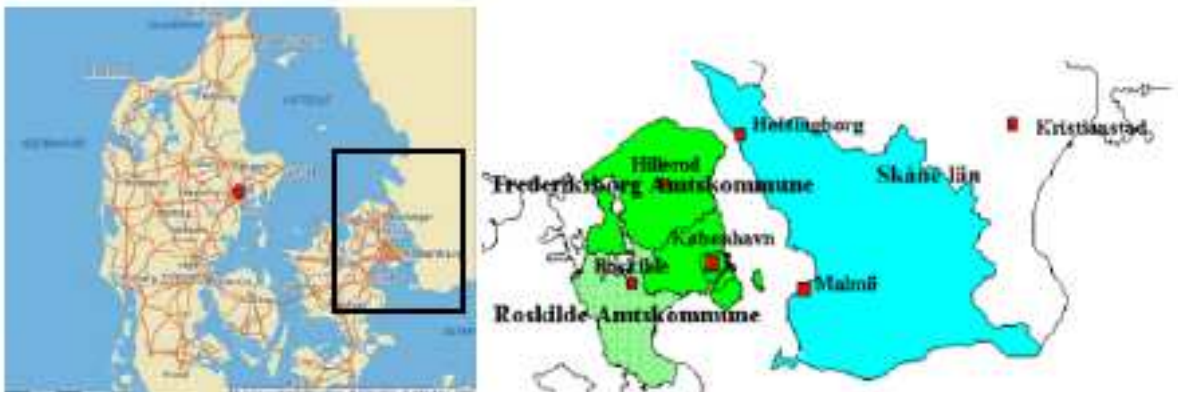


**Figure 6 Oresund region**

# Region Thy/Mors

| Location within Europe | Nordic | Western | East-Central | Mediterranen |
|---|---|---|---|---|
| | X | | | |

| Type of location | Core | Transitional | Peripherral |
|---|---|---|---|
| | | | |
| | Cross-border | Coastal | Mountain |
| | | X | |

| Size | Inhabitants (nb.) | Density (nb./ km$^{2)}$ | Surface (km$^2$) | Pop. growth rate, 1990-2010 (increase/decrease/stabile) |
|---|---|---|---|---|
| | 65.000 | 2.5 | 3000 | |

**Qualitative description**

A local population of 65.000 but the region visited by a large number of second home owners and tourists Klitmøller being among the important windsurfing sites in Europe) triples or quadrubles the population in summer.
The Thy/Mors region is interesting in the aspect of multifunctional landscapes as the following activities are taking place:

- Including the first Danish national park = protection of species as well as of pristine
- landscapes
- Agriculture, with Mors as one of the most intensive producing areas in Denmark
- A large number of renewable energy producers – both individual and park based windmills, a high production of biomass for power and district heating generation. One of the few geothermal sites in Denmark
- The establishing of a Windmill testing site
- Both large scale and small scale fisheries
- Forestry
- Tourism
- Second homes

Even the region is rural, the interaction with major cities not only in Denmark but also in Germany is obvious due to this region being among the most attractive places during summer.

| Land use structure (%) | Artificial surface | Agricultural land | Forested land | Water bodies |
|---|---|---|---|---|
| | | 55% (2009 ) | 10% (2009) | |

| Major tendency in structure of land use in period 2000-2006 (2000=100%) | Artificial surface | Agricultural land | Forested land | Water bodies |
|---|---|---|---|---|
| Increase (***A*** – above country level, ***B*** – below country level) | | - | - | |
| Decrease (***A*** – above country level, ***B*** – below country level) | | - | - | |
| Stable | | - | - | |

| Dominant land use changes 1990-2006 (see Nordregio said nb. 23) | agricultural land has decreased , while urban land use has increased |
|---|---|

| Description of land use changes (other important information) | • region promotes itself as a rural<br>• more intensive agriculture than in other regions<br>• many small lakes and watercourses have disappeared from the landscape as a result of draining |
|---|---|

| Socio-economic level | GDP per head | Index of unemployment | Share of high educated inhab. | Degree of urbanization (densely/intermed./thinly |
|---|---|---|---|---|
| | 37.000 Euro | 4,4% (2009) | 29,6 % (2010) | thinly |

| Regional functions (2 – highly represented; 1 – represented; 0 – lack) | Agriculture | Forestry | Tourism and recreation | Settlement (Build up) | Industry | Others (administrative, education, etc.) |
|---|---|---|---|---|---|---|
| | 2 | 0 | 2 | 0 | 0 | 2 |

| | |
|---|---|
| **Other qualitative description of region** | This region is already part of Nordregio's research agenda, so accessing data, interviews etc. would be quite easy.<br>In relation to the aims of the case studies, this region will contribute by:<br>- Verify and confirm proposed typology and identified processes and challenges.<br>- Identify land use functions and undertake a "multifunctionality" assessment<br>- Identify factors and drivers (natural and socio-economic) of land use changes and land use dynamics in detail in different types of areas;<br>- Give answer about mechanisms and trends (processes) of land use changes at local scale;<br>Identify challenges in those areas and defining policy recommendations to cope with those challenges on the basis of stakeholdes opinion; |
| **Major local and regional plan documents** | Regional Development Plan 2007 [http://www.rn.dk/NR/rdonlyres/46389D16-8094-4195-8C4E-1FB826318AA4/0/NorthDenmarkRegion_RegionalDevelopmentPlan2007.pdf]<br>Business Development Strategy 2007-2010 [http://www.rn.dk/NR/rdonlyres/37A7FD8A-7C17-4E18-A89B-B4B78E3C6A74/0/NorthDenmarkRegion_BusinessDevelopmentStrategy20072010.pdf] |

**Localization on the map**


http://nationalparker.skovognatur.dk/Thy/Kort/NationalparkThyKort.htm

**Figure 7 Thy/Mors region**

| Region Jeleniogórski | | | | | |
|---|---|---|---|---|---|
| **Location within Europe** | Nordic | Western | East-Central | Mediterranen | |
| | | | X | | |
| **Type of location** | Core | Transitional | Peripherral | | |
| | | | X | | |
| | Cross-border | Coastal | Mountain | | |
| | | | X | | |

| **Size** | Inhabitants (nb.) | Density (nb./ km$^{2)}$ | Surface (km$^2$) | Pop. growth rate, 1990-2010 (increase/decrease/stabile) |
|---|---|---|---|---|
| | **576 145** | **103,4** | **5 571 km2** | **Average -3,3 ‰ per year** |

**Qualitative description**

Regions relatively rare inhabited (average in Poland 122,1 inhabitants per km2) and with decreasing number of inhabitants, in region in 2009 domestic migration rate -1,7 ‰, natural movement rate -1,6 ‰). Urban rate relatively high in comparison to Polish conditions (jeleniogórskie 62,5 %, Poland 61%), without big cities but with many small towns. The biggest is Jelenia Góra (84,5 thous. inhab.). Share of inhabitants in postproductive age relatively low (jeleniogórski 16,2%, Poland 16,5 %). High share of unemployment (jeleniogórski 17,5 %, Poland 11,9 %). High share of forests in land use structure (jeleniogórski 39,3 %, Poland 29,3 %), and low share of arable lands (jeleniogórski 32,5 %, Poland 44,3 %). GDP per capita relatively low, poorest region in dolnoslaskie voivodeship, only 71,5 % of the average value in voivodeship, 77,7 % of Polish average..

- High level of forest
- Very diverse landscape
- Valuable natural features and significant geo- and biodiversity
- Dense, well-developed settlement network, many small towns
- Development of service, residential and commercial functions
- High spatial mobility of population
- Relatively high number of post-socialist factories
- Multifunctionality of most rural areas
- Agritourism upland/mountain areas
- Concentration of commerce and services around certain border crossings
- Dense road system
- Outstanding natural and cultural features plus attractive landscape as foundation for further development of tourism
- Special conditions for health and spa-based tourism
- Increased interest in buying land and second homes

Functional diversification of borderland area

| **Land use structure (%)** | Artificial surface | Agricultural land | Forested land | Water bodies |
|---|---|---|---|---|
| | | 25% (2009 – NUTS2) | 51% (2009 – NUTS2) | |

| **Major tendency in structure of land use in period 2000-2006 (2000=100%)** | Artificial surface | Agricultural land | Forested land | Water bodies |
|---|---|---|---|---|
| Increase (***A*** – above country level, ***B*** – below country level) | | - | A (103%) | |
| Decrease (***A*** – above country level, ***B*** – below country level) | | A (89%) NUTS2 | - | |
| Stable | | - | - | |

| **Dominant land use changes 1990-2006 (see Nordregio said nb. 23)** | transformations associated with the takeover of land used for agriculture to industry, urbanization, and forestry forms of land use |
|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| **Description of land use changes (other important information)** | • increased area fallow and idle land<br>• high forest cover | | | | | |
| **Socio-economic level** | GDP per head | Index of unemployment | Share of high educated inhab. | Degree of urbanization (densely/intermed./thinly | | |
| | **5 952 €** | 13,7% (2009) | 18,4 % (NUTS 2) | thinly | | |
| **Regional functions** (2 – highly represented; 1 – represented; 0 – lack) | Agriculture | Forestry | Tourism and recreation | Settlement (Build up) | Industry | Others (administrative, education, etc.) |
| | 2 | 2 | 1 | 0 | 1 | 0 |
| **Other qualitative description of region** | Multifunctional region, well recognized by us, we have some research experience from this region. | | | | | |
| **Major local and regional plan documents** | The 2000-2020 Development Strategy for the Slaskie Voivodship [http://bip.slaskie.pl/STRATEGIA/strategia_07_05.pdf];<br>Spatial Development Plan the Silesian Voivodeship [http://slaskie.pl/planzagospodarowania/]<br>The 2006-2010 program of renewal rural area of the Silesian Voivodeship [http://www.slaskie.pl/strona_n.php?jezyk=pl&grupa=3&dzi=1248440598&id_menu=160] | | | | | |

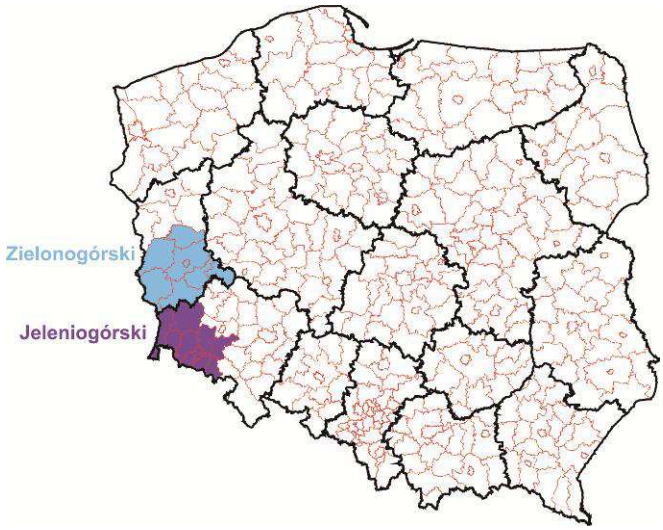


**Figure 8 Region Jeleniogorsky**

| Region Chelm-Zamosc | | | | | | |
|---|---|---|---|---|---|---|
| **Location within Europe** | Nordic | Western | East-Central | Mediterranen | | |
| | | | x | | | |
| **Type of location** | Core | Transitional | Peripherral | | | |
| | | | x | | | |
| | Cross-border | Coastal | Mountain | | | |
| | x | | | | | |
| **Size** | Inhabitants (nb.) | Density (nb./ km$^{2)}$ | Surface (km$^2$) | Pop. growth rate, 1990-2010 (increase/decrease/stabile) | | |
| | 644 007 (2010) 649318 (Eurostat) | 69.3 (2006) 70.0 (Eurostat) | 9 291 9290 (Eurostat) | decrease | | |
| **Qualitative description** | | | | | | |
| **Land use structure (%)** | Artificial surface | Agricultural land | Forested land | Water bodies | | |
| | 3,17 | 72,38 | 23,55 | 0,32 (+0,58 wet) | | |
| **Major tendency in structure of land use in period 2000-2006 (2000=100%)** | Artificial surface | Agricultural land | Forested land | Water bodies | | |
| Increase (***A*** – above country level, ***B*** – below country level) | A (124,6) | | A (103,6) | A (114,9) | | |
| Decrease (***A*** – above country level, ***B*** – below country level) | | B (98,0) | | | | |
| Stable | | | | | | |
| **Dominant land use changes 1990-2006 (see Nordregio said nb. 23)** | Conversion from agricultural land cover to artificial and forested land | | | | | |
| **Description of land use changes (other important information)** | 1) stable increase of forested land<br>2) increase of artificial surface<br>3) domination of arable land in agricultural land<br>4) Diversified plant cultivation | | | | | |
| **Socio-economic level** | GDP per head | Index of unemployment | Share of high educated inhab. | Degree of urbanization (densely/intermed./thinly | | |
| | 5700 € | 13.8 (2009) | - | thinly | | |
| **Regional functions** (2 – highly represented; 1 – represented; 0 – lack) | Agriculture | Forestry | Tourism and recreation | Settlement (Build up) | Industry | Others (administrative, education, etc.) |
| | 2 | 2 | 2 | 0 | 0 | 1 |
| **Other qualitative description of region** | 1) poorly developed industry<br>2) low income households dependent on agriculture<br>3) untapped tourism potential<br>4) negative migration balance<br>5) unfavorable age and sex structure of population | | | | | |
| **Major local and regional plan documents** | *Social Policy Strategy of Lubelskie Voivodship* [http://www.lubelskie.pl/index.php?pid=196];<br>*The 2020 Development Strategy for the Lublin Voivodship* [http://www.lubelskie.pl/index.php?pid=1093];<br>*The 2008-2015 Development Strategy for Chełm District* [http://www.powiat.chelm.pl/articles.php?lng=pl&pg=466]<br>*The 2008-2015 Development Strategy for Zamość District* [http://www.bip.starostwo.zamosc.pl/page/776/84/strategia-rozwoju-powiatu-zamojskiego-na-lata-20.html] | | | | | |

**Localization on the map**

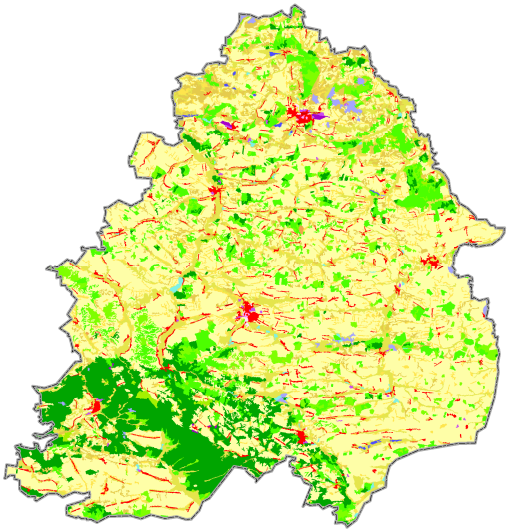

**Figure 9 Region Chelmsko-zamojski**

# Region Groot Amsterdam

| Location within Europe | Nordic | Western | East-Central | Mediterranen |
|---|---|---|---|---|
| | | X | | |

| Type of location | Core | Transitional | Peripherral |
|---|---|---|---|
| | X | | |
| | Cross-border | Coastal | Mountain |
| | | | |

| Size | Inhabitants (nb.) | Density (nb./ km$^{2)}$ | Surface (km$^2$) | Pop. growth rate, 1990-2010 (increase/decrease/stabile) |
|---|---|---|---|---|
| | **1,235,514** | **1563 hab/km2** | **790.32km2** | **1990-2009: 161,167** |

**Qualitative description**

The case study area "Groot Amsterdam" (NUTS3) is 790 km2 and located in the province of Noord-Holland. The NUTS3 region (NL326) consists of 15 municipalities. The centre is Amsterdam the capital of the Netherlands. In the southwest the international airport Schiphol is located with cities like Amstelveen, Hoofddorp and Nieuw-Vennep. In between these cities you find arable land. The northwestern part consist mainly of pastures with some places like Purmerend and Edam-Volendam.
Twenty nine different types of land use exist in the national detailed land use map of 2008 (LGN6). The main land uses in the NUTS3 region "Groot Amsterdam" are presented in the Table.

In between 2004 and 2008 in the NUTS region only 5.9km2 of land use changed between these main classes.

Some socio-economic indicators for the NUTS3 region:
GDP per capita 52,857 Euro (2007), labour input of employed persons (1000 full time eq. jobs) 696.4, housing stock in absolute figures for dwellings, recreation houses, capacity recreational buildings are respectively 592,711; 290 and 16,012. And the following table presents the regional accounts

| Regional accounts; production and generation of income by industry | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Subj | Output (basic prices) | Interm Consum. | Gross value added | Compens of employees | Taxes, not product-related | Subsidies, not product-related | Gross operating surplus | Labour input of employed persons |
| SIC '93 | Periods | mln euro | mln euro | mln euro | mln euro | mln euro | mln euro | mln euro | 1000 fte's |
| Total economic activities | 2007 | 123669 | 66513 | 57156 | 33679 | 642 | 437 | 23273 | 696.4 |
| A+B Agriculture hunting forestry fishing | 2007 | 779 | 377 | 402 | 140 | 8 | 8 | 262 | 6.2 |
| C-F Industry | 2007 | 19941 | 13802 | 6139 | 3127 | 39 | 79 | 3051 | 70.8 |
| G-K Commercial services | 2007 | 85522 | 45455 | 40067 | 22639 | 507 | 212 | 17133 | 437.7 |
| L-P Public administration, social work | 2007 | 17427 | 6879 | 10548 | 7772 | 87 | 138 | 2826 | 181.7 |

| Main Land use | Area |
|---|---|
| agriculture | 360.4 |
| greenhouses | 8.2 |
| orchards | 1.6 |
| forest | 13.2 |
| water | 84.4 |
| urban | 256.2 |
| infrastructure | 34.9 |
| nature | 31.4 |
| total | 790.3 |

At least per municipality information is available on population, education, housing, income-social security, infrastructure and mobility, criminality

| | | | | |
|---|---|---|---|---|
| **Land use structure (%)** | Artificial surface | Agricultural land | Forested land | Water bodies |
| | | 17 % (2009 –NUTS2) | 4 % (2009 – NUTS2) | |

| **Major tendency in structure of land use in period 2000-2006 (2000=100%)** | Artificial surface | Agricultural land | Forested land | Water bodies |
|---|---|---|---|---|
| Increase (***A*** – above country level, ***B*** – below country level) | | A (104%) NUTS2 | A (119%) NUTS2 | |
| Decrease (***A*** – above country level, ***B*** – below country level) | | - | - | |
| Stable | | - | - | |

| | |
|---|---|
| **Dominant land use changes 1990-2006 (see Nordregio said nb. 23)** | Urbanization, multifunctional land use; urban agriculture on the under-used land. |
| **Description of land use changes (other important information)** | Revitalization of the structure of land use in region, |

| **Socio-economic level** | GDP per head | Index of unemployment | Share of high educated inhab. | Degree of urbanization (densely/intermed./thinly |
|---|---|---|---|---|
| | GDP /capita EU27 = 100 : 190<br>GDP /capita country = 100: 143 € | 3,8 % (2009) | 38,7 % (2010 NUTS 2) | densely |

| **Regional functions** (2 – highly represented; 1 – represented; 0 – lack) | Agriculture | Forestry | Tourism and recreation | Settlement (Build up) | Industry | Others (administrative, education, etc.) |
|---|---|---|---|---|---|---|
| | 0 | 0 | 1 | 2 | 1 | 2 |

| | |
|---|---|
| **Other qualitative description of region** | • detailed spatial land cover/use information available at 25*25m grid level<br>• national statisitics at municipality level from national office of statistics (CBS)<br>• geographical information on agricultural farms (GIAB)<br>• farmland prices |
| **Major local and regional plan documents** | *Amsterdam City Comprehensive Plan [http://www.scribd.com/doc/59941257/Amsterdam-City-Comprehensive-Plan]* |

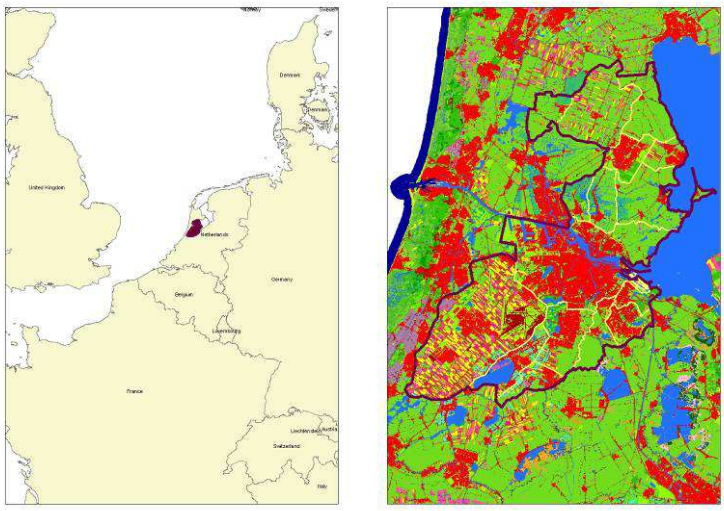

**Figure 10 Region Groot Amsterdam**

# Eurocity Basque Bayonne- San Sebastián

| **Location within Europe** | Nordic | Western | East-Central | Mediterranen |
|---|---|---|---|---|
| | | | | X |

| **Type of location** | Core | Transitional | Peripherral |
|---|---|---|---|
| | | | |
| | Cross-border | Coastal | Mountain |
| | X | X | |

| **Size** | Inhabitants (nb.) | Density (nb./ km$^{2)}$ | Surface (km$^2$) | Pop. growth rate, 1990-2010 (increase/decrease/stabile) |
|---|---|---|---|---|
| | 650.000 | about 140/km² | 800 km² | unknown |

| **Qualitative description** | The Basque Eurocity of Bayonne-San Sebastián is located on both sides of the dividing line that was historically formed by the Bidasoa River.<br>"The Bayonne-San Sebastián Basque Eurocity" straddles the French-Spanish border on the Atlantic side of the Pyrenees, extending along the 50 km urban corridor that separates Bayonne and San Sebastián. It is the natural access route between the Iberian Penninsula and Western and Central Europe..."<br>- At the heart of the Atlantic Arc between Bilbao and Bordeaux.<br>- At the western end of the French- Spanish border.<br>- On the Atlantic façade of the Pyrenees.<br>Both territories share a common Basque cultural heritage and throughout history have lived together through periods governed by mutual goodwill and the desire to promote reciprocal needs and interests, and, as has occurred in other border areas, also through periods of confrontation and estrangement. In effect, the special circumstances of the twentieth century made the Franco-Spanish border very strong. |
|---|---|

| **Land use structure (%)** | Artificial surface | Agricultural land | Forested land | Water bodies |
|---|---|---|---|---|
| | | 23% (2006-NUTS2) | 41 %(2006 – NUTS2) | |

| **Major tendency in structure of land use in period 2000-2006 (2000=100%)** | Artificial surface | Agricultural land | Forested land | Water bodies |
|---|---|---|---|---|
| Increase (***A*** – above country level, ***B*** – below country level) | | | B(100,2%) | |
| Decrease (***A*** – above country level, ***B*** – below country level) | | A (98%) | - | |
| Stable | | | - | |

| **Dominant land use changes 1990-2006 (see Nordregio said nb. 23)** | green area devoted to agriculture, with little rural villages (French side) and Spain's industrial north |
|---|---|
| **Description of land use changes (other important information)** | • visible pressure on land use change by the infrastructure |

| **Socio-economic level** | GDP per head | Index of unemployment | Share of high educated inhab. | Degree of urbanization (densely/intermed./thinly |
|---|---|---|---|---|
| | 25.000 | 10,7% (2009) | 36,8 % (2009 – NUTS 2) | intermed |

| **Regional functions** (2 – highly represented; 1 – represented; 0 – lack) | Agriculture | Forestry | Tourism and recreation | Settlement (Build up) | Industry | Others (administrative, education, etc.) |
|---|---|---|---|---|---|---|
| | 2 | 1 | 2(France) | 1 | 2(Spain) | 0 |

| **Other qualitative description of region** | The desire to live without frontiers and to co-operate across borders, means that sharing differences and diversity produces a new metropolitan reality that adds a new element to the features defining the identity that each of us already has. New squares, avenues, universities, beaches, promenades... will spring up out of the sum of those that already exist.<br>Here are just two examples: the Eurocity will have a large square, the |
|---|---|

| | |
|---|---|
| | Main Square of the Eurocity, which will be the sum of the squares that already exist in our cities today. Our University won't have a single campus, but the university campus of the Eurocity will be the sum of the campuses that we already have. The same will happen with the beach, the coast, culture... |
| **Major local and regional plan documents** | THE BASQUE EUROCITY BAYONNE-SAN SEBASTIÁN THE STRATEGY : OBJECTIVE AND ACTIONS [http://www.eurocite.org/page.asp?IDPAGE=244] |

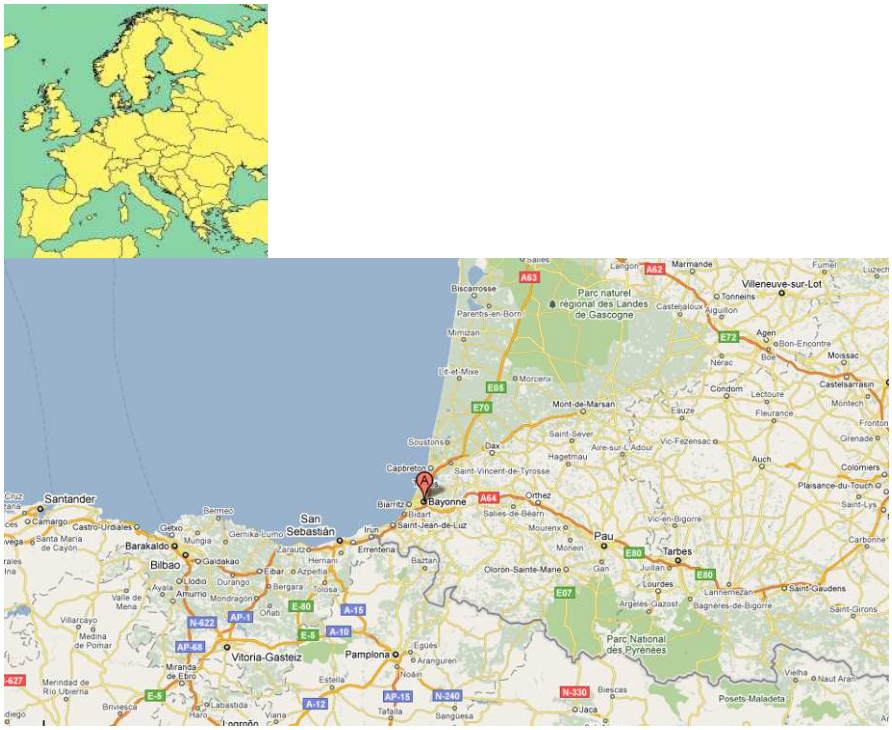


**Figure 11 Eurocity Basque Bayonne-San Sebastian**

# 4 App. 2

## Field study – interview questionnaire

Region ……..
Place …….
Person interviewed ……..
Interviewer ……
Date ……..

Introduction to the interview
Please inform the interviewed person about a major EU-LUPA Espon project aims and expected results of case studies (i.e. to understand and obtain a clear view on land use dynamics, land use changes and current land use patterns in the European territory, Identify main challenges in different types of territories, regions and cities by means of their territorial efficiency and define the policy options and recommendations to cope with these challenges).

I. Socio-economic factors of land use change
Could you describe the main demographic processes in the region: migrations, birth rate etc.? What is their impact on land use?
……
What are the main processes and trends of settlement? What is the impact of new settlements on land use and spatial organization? Is there a lot of new built-up areas? What are the forms: contiguous development, linear patterns, scattered development?
……
What are the main processes, directions of changes in the field of agriculture (extensification or intensification, changes of fields spatial structure and crops structure)?
……
Are there such processes like: changing agricultural function of areas into other functions? Building-up areas of fertile soils? Increasing/decreasing the share of untilled land? Please describe briefly the processes concerning changes of agricultural land use.
……
What are the main processes in the field of industry and technical infrastructure (new plants, industry centers, roads, railways etc.)? How would you assess its influence on land use?
……
What are the main processes in the field of tourism and services? Is there any development of tourism infrastructure (new hotels, holiday centers, swimming pools, tourist roads)? How intensive is the development in the spatial context (spatial extent of new areas used for tourism purposes etc.)?
……
How would you describe and summarize the general conditions of economy in your region and its impact on land use? Please refer also to employment issues.
……

II. Environmental issues
Could you describe the main changes of natural areas in the last five decades (changes of forested areas, biodiversity, water conditions)? Has the spatial extent and condition of areas of high nature value changed for the last five decades?
……

Please assess the main contemporary and future threats for natural areas (especially protected areas) in the region. How are they related to land use changes?
……
Were there any natural disasters in the region in the last two decades which influenced the land use and land cover (floods, fires)?
……

III. Multi-functionality
Please name socio-economic and environmental functions of land use in the region.
……
Multifunctional land use - which of the functions in your region co-exist?
……
Which of the functions are the most important in the context of land use?
……
Is the number of functions of land use increasing or decreasing?
……
To which extent is the land in your region used in multifunctional way?
……
What kind of functions co-existence is:
the most effective?
……
the most desirable?
……
the most common?
……
the most difficult?
……
Which of the functions of land use are the most important for the future regional development?
……

IV. Spatial conflicts
Are there any conflicts related to land use? (As space is limited different actors compete to obtain the possibly largest area or their needs. For example: inhabitants strive to build houses, a businessman wants to put a plant or warehouse, there is a need to build somewhere sewage plant, administration of protected area tries to enlarge the area and so on).
What are the “competing” actors and functions (environmental, agricultural, industrial, settlement etc.)?
Which of the actors are the most dynamic and successful in obtaining new land?
What are the most likely conflicts related to land use in future and what could be its impact on land use?

V. Government and policy
Please assess the state and regional law concerning spatial management and planning in your region. Are legal rules effective in sustainable and rational management of land?
……
Is the local and regional administration effective in land management and in preventing and solving conflicts related to land use? (Please describe and assess the issue and give some examples. Summarize the role of local and regional administration in management of land use).

……
Is there any monitoring of land cover changes in the region? (Please describe briefly).
……

VI. Localization (depending on the region)
How land use changes are resulting from vicinity of state border (how the state border influence land use in your region)?
……
How land use changes are resulting from vicinity of sea coast (how the coastal location influence land use in your region)?
……

VII. Land use in general
Please describe and summarize the major processes and trends of land use changes in the region over a last 50 years.
……
In a typology elaborated on the basis of statistic data, your region represent the type X, characterized by..... Is it a proper type for your region? Please explain.
……

# 5 App. 3

## Exemplar Region Report Structure

INTRODUCTION TO THE REGION

*(Administrative and geographical location: area, number of inhabitants, other basic data. Reasons which decided to choice the region for the study.*

1. CHARACTERIZATION OF LAND USE AND LAND COVER

1.1. Definitions of land use

1.2. Surface and structure of land use

*(Basic data on land use in the region. A brief description on how the land is used and what the related economic activities – based on the data, regional documents, literature).*

1.3. Land cover specific

*(Land cover reflects the biophysical state of land. The specific land covers patterns, structures, characteristic and peculiar for the region).*

1.4. Protected areas (from environment, military, etc. points of view)

*(Protected areas generate different limitations of human activities and thus they influence significantly land use and the related processes. There are different forms and extent of nature and landscape protection. Areas protected from other point of view should be also identified and described in the region (areas of limited use around airports, landfill sites, sewage plants; military areas etc.).*

1.5. Technical management of the land use (infrastructure, drainage systems, etc.)

*(The main elements of technical infrastructure: roads, railways, power network, drainage systems).*

1.6. Major trends in historical context

*(The processes and major trends concerning land use and land cover structure on the basis of statistical data, literature and interviews with regional experts. The impact of economic and demographic processes and phenomena on land cover in historical context. The past trends and tendencies are, on the one hand, a background for contemporary processes, and on the other hand they can help with foreseeing the future processes).*

2. NARRATIVE OF CHANGE IN RELATION TO LAND USE

2.1. Socio-economic (demography, employment, … etc.)

*(The main demographic processes and phenomena influence land use changes significantly. The economic situation and dynamics, which is connected with socio-demographic issues, is also very important as regards land use and land management. Description of the processes of agriculture, industry, tourism development and employment, with a focus on its impact on the land use. Statistical data, regional documents and interviews results should be used).*

2.2. Environment (Landscape, soils, climate change… etc.)

*(Description of the environmental changes, changes in the spatial extent and condition of protected areas over the last decades, as well as main threats to natural areas. Relations between socio-economic processes and environmental conditions, and its impact on land use).*

### 2.3. Government and planning system

*(The analysis of administrative and legal system related to spatial planning and management. The effective and efficient institutions, coherent and effective law and state policy play an important role in land management and land use. Description of the planning system.)*

### 2.4. Localization (accessibility, core-periphery, urban-rural continuum)

*(The location of the region in economic space is very often a key factor of land use processes. The location in European and national scale, as well as the internal spatial differentiation of the region in terms of accessibility, core-periphery relations).*

### 2.5. Conclusions in the context of land use

*(The above mentioned issues and processes related to localization, demography, economy, environment, administration and governance will be summarized and assessed from the point of view of land use, its contemporary and future changes).*

## 3. ANALYSIS OF LAND USE CHANGES

### 3.1. Dynamics and directions of land use and land cover changes

*(Dynamics of land use and land cover should be presented graphically (charts, maps) on the basis of regional databases. The period of analysis should depend on availability of data. Interview results will provide detailed information for description, understanding and explanation of the dynamics and directions of land use).*

### 3.2. Trends, actors and drivers of the changes (micro and macro scale)

*(On the basis of interviews results, regional, local documents and literature main drivers of land use change will be identified and described on the local/regional scale. Drivers can be related to demographic processes, economy, employment, agriculture, environment, governance, transport. The major actors (for example: entrepreneurs, new inhabitants, farmers, tourists) who determine land use changes will be identified. An important point will be also a holistic analysis of drivers and actors who create a complex and interrelated system).*

### 3.3. Contemporary and potential conflicts

*(As space is limited different actors compete to obtain the possibly largest area or their needs. Spatial conflicts reflect how strong is the competition for land and who are the most important actors, what are the main drivers. Interviews with local experts will provide information on contemporary and potential future spatial conflicts).*

### 3.4. Scenarios

*(The possible scenarios of future land use and land cover changes will be presented on the basis of statistical data and the other information collected during the study. The scenarios will reflect low, moderate and fast economic development).*

## 5. MULTI-FUNCTIONALITY OF LAND USE

### 5.1. Functional differentiations

*(Functional profile of the chosen region will be presented and analysis of the local differentiations of economic functions).*

### 5.2. Current multiple uses of land

*(Identification of co-exists functions of the land use in the region. Inter-actions between the multiple uses of land and their temporal and spatial changes. Evaluation of the most effective, desirable, common and difficult functions in the context of land use multi-functionality).*

### 5.3. Potentiality of multiple uses of land

*(Identification of the potential other land activities. Possible conflicts between functions).*

6. POLICY CONTEXT OF LAND MANAGEMANT

6.1. Land use in the regional/local documents

*(Local and regional strategies, plans and programs related to land use, spatial planning and management, socio-economic development and environment will be reviewed and assessed).*

6.2. Influences of regional/local planning

*(Programs and plans of spatial development contain the future directions of land use, which are planned and expected by local/regional authorities. The review of regional and local plans and programs will help with foreseeing future land use changes).*

7. CHALLENGES AND POLICY RECOMMENDATIONS (2020 perspective)

8. CONCLUSION

*(Drivers and dynamics of land use will be summarized and assessed. An important part of conclusions will be identification of major effects of land use changes).*

LITERATURE

APPENDIXES

www.espon.eu

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