32nd International Geographical Congress in Cologne

Land use and land cover changes in Øresund region

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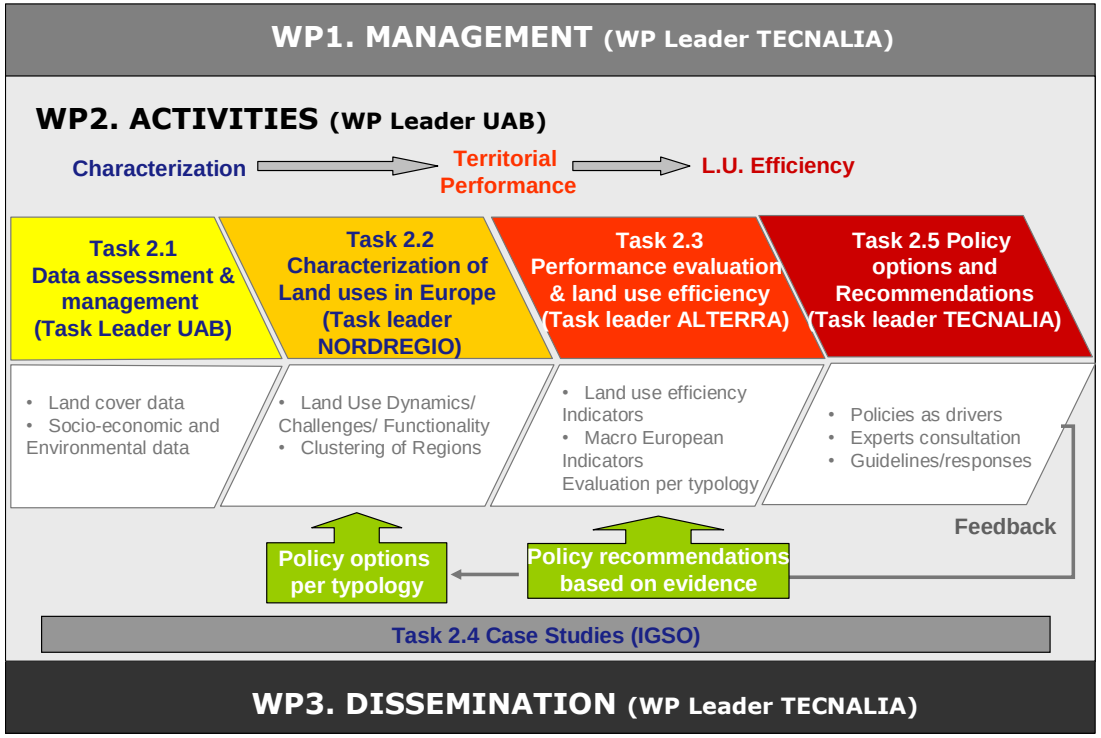
Session on Land Use and Land Cover Change
Urbanisation and demographic change

EU-LUPA project



1990-2000-2006

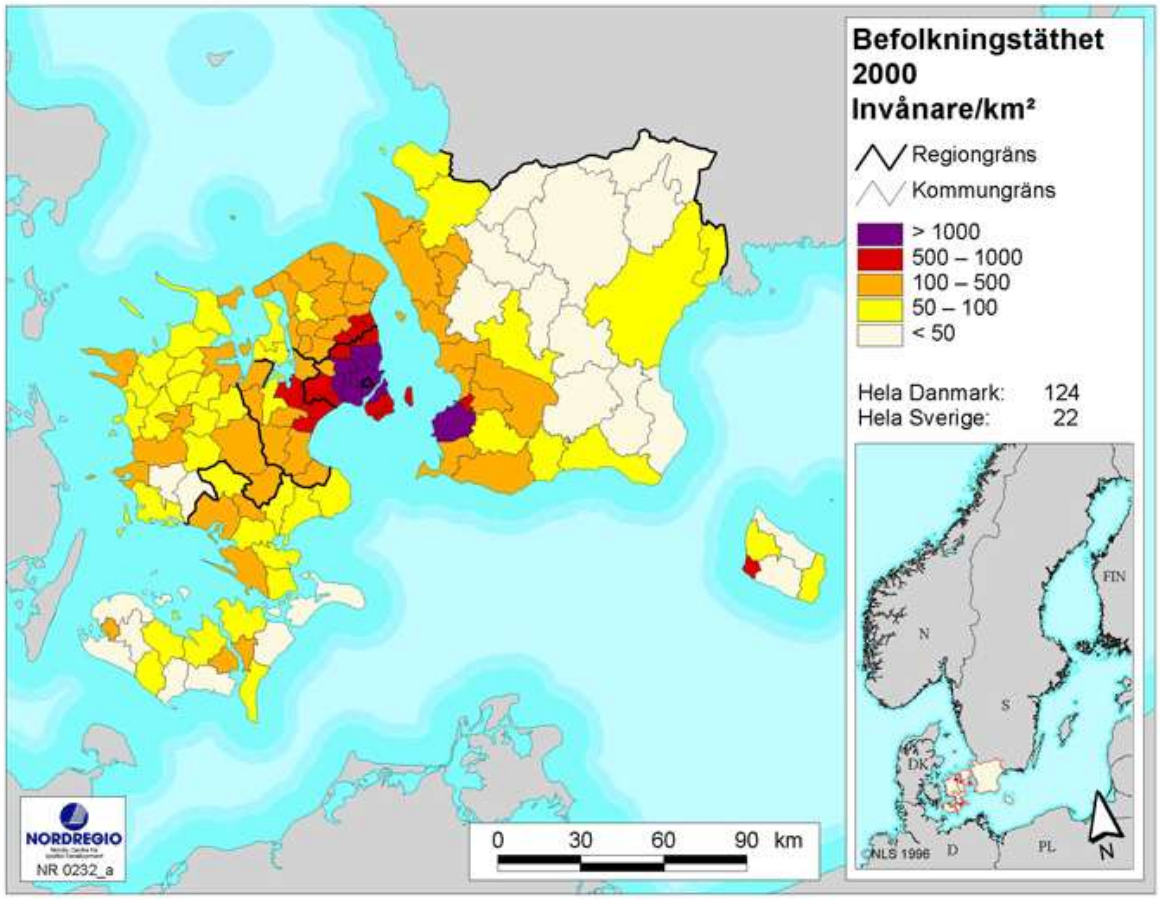
Corine Land Cover

Research tasks

1. What are the main processes of land use and land cover changes in region?
2. What are the factors influencing changes ?

ESPON

Øresund region



The Øresund Population density in 2000

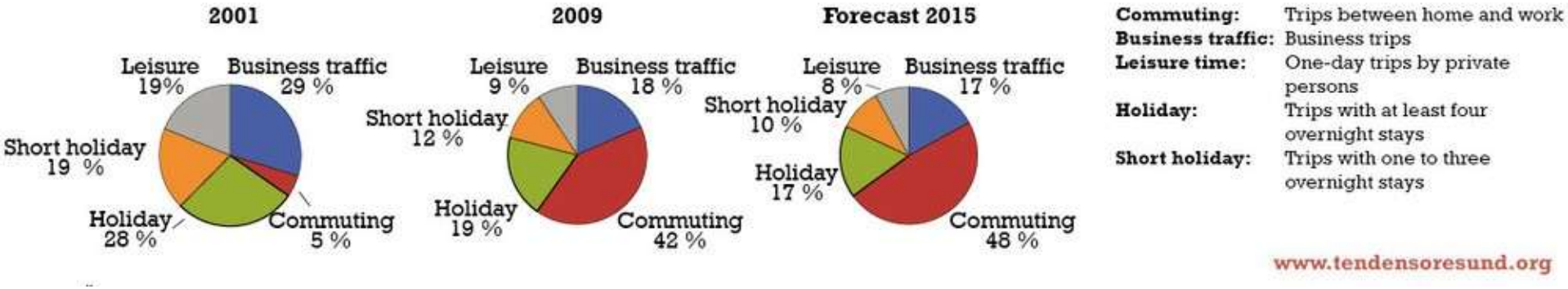
Befolkningstäthet = population density
Kommun = municipality
Invånare/km² = Population/km²
Hela Sverige/Danmark = Whole of Sweden/Denmark
Source : http://www.nordregio.se/

Daily traffic across the Øresund Bridge

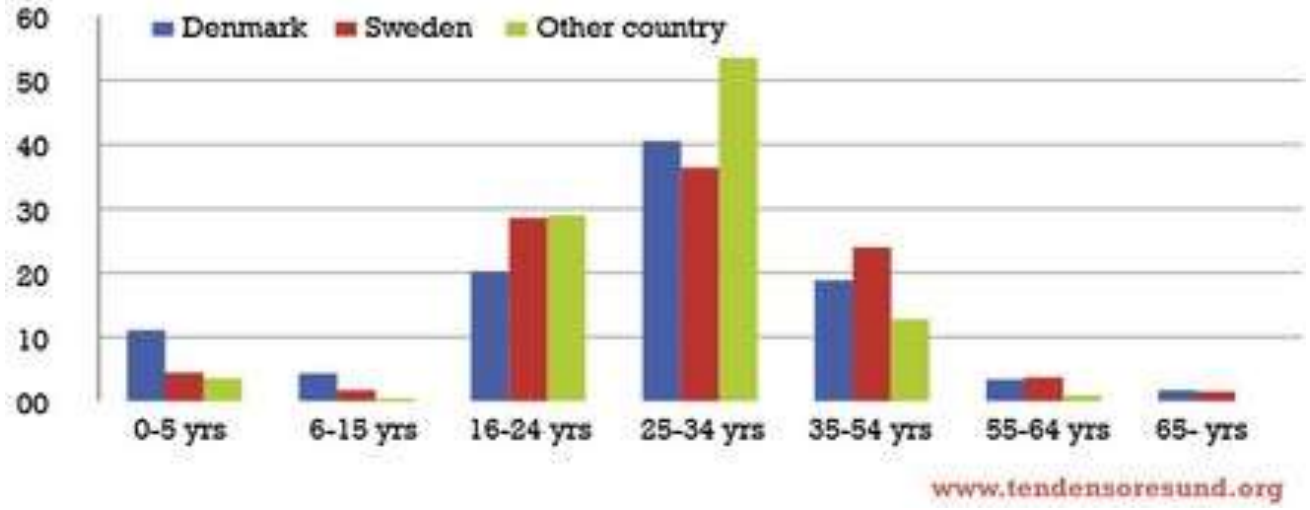
Category	2001	2005	2007	2008	2009	Growth 2001 – 2009
Passenger cars	7,290	12,328	16,831	17,767	17,986	147%
Motorcycles	67	82	106	96	93	39%
Vans and caravans	204	300	465	441	449	120%
Lorries	421	737	927	932	817	94%
Coaches	103	155	153	131	117	13%
Total traffic	**8,085**	**13,602**	**18,482**	**19,367**	**19,462**	**141%**

Source: Ten years, the Øresund bridge and its region http://uk.oresundsbron.com/page/34

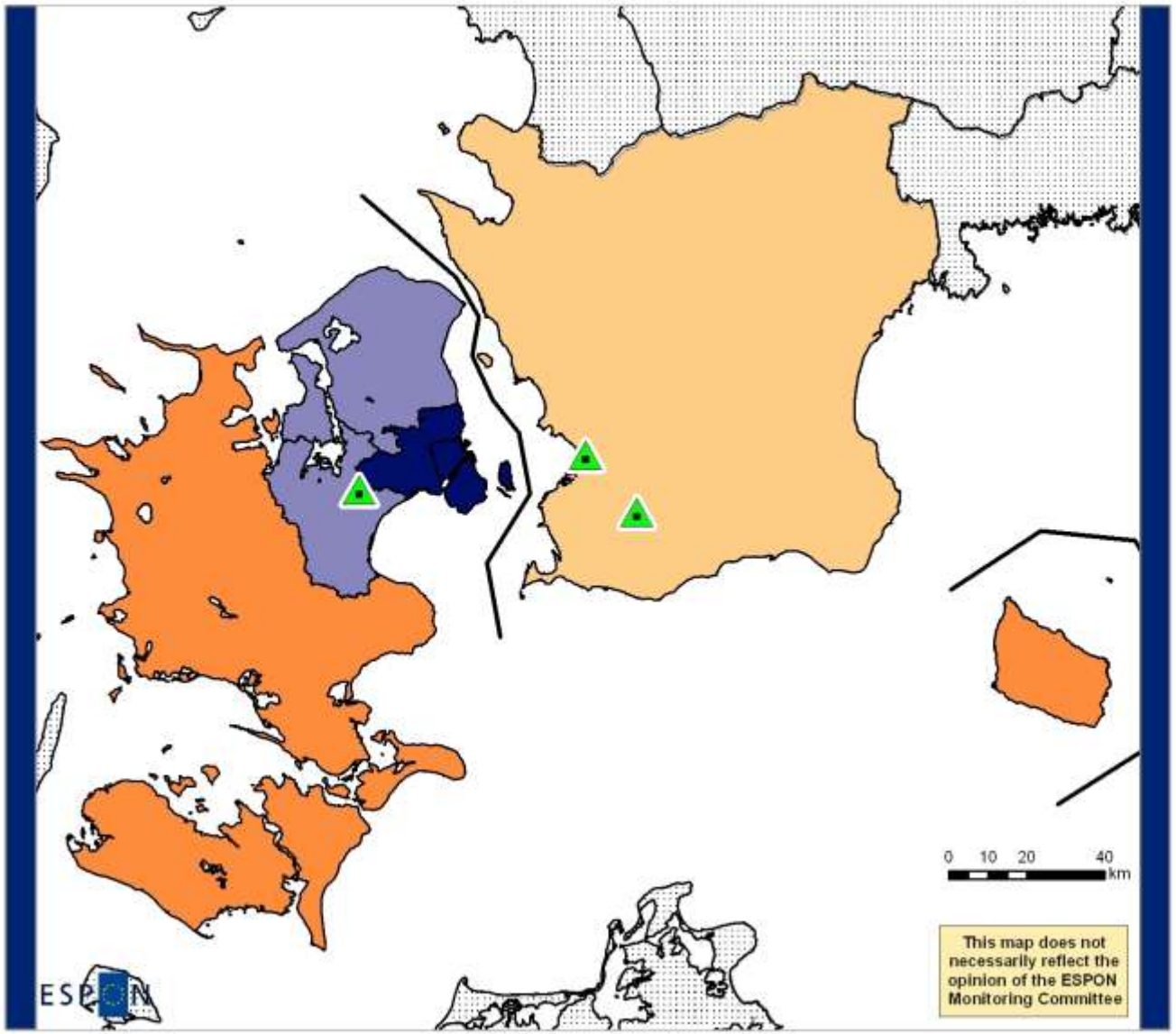
Purpose of travel with passenger car over the Øresund Bridge



Migrants from Öresund DK to Öresund SE by nationality and age (2009, percentage)



Stable Elements of Land Use 1990-2006
Øresund Region



Land Use Types

- Urban cores and metropolitan areas
- Suburban areas
- Suburban or peri-urban areas
- Arable land in peri-urban and rural areas
- Arable land and pastures in predominantly rural areas
- Rural arable land with permanent crops and some forest
- Rural mix dominated by pastures with some arable land
- Rural pastures and complex cultivation paaterns
- Diverse land use in rural areas
- Diverse rural forest coverage with limited farming
- Arid mixed forest
- Rural forest
- Sparse vegetation with some forest and pasture
- Sparsely vegetated areas

- Points of investigation
- National boundary
- Regional boundary
- Areas outside the case study region

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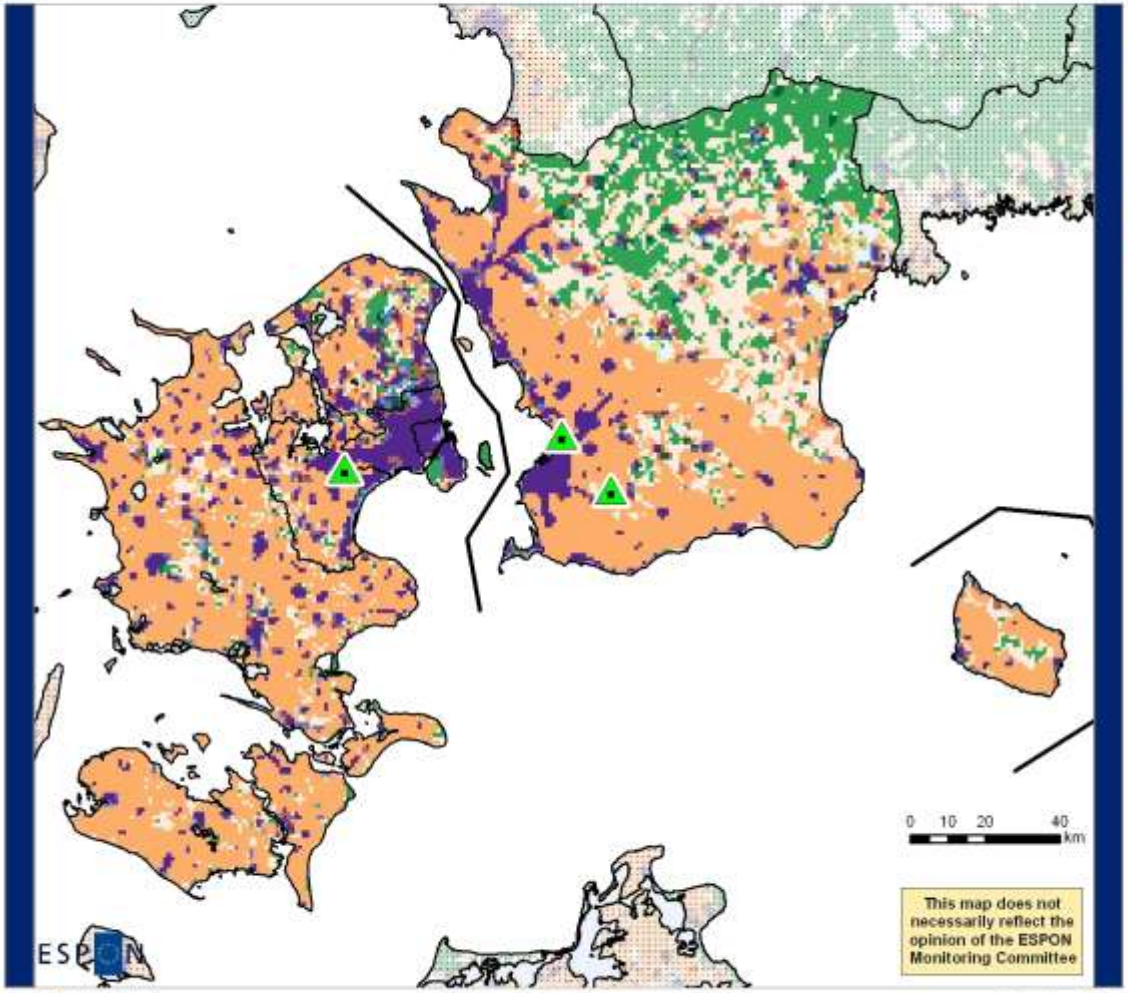
Regional level: NUTS X
Source: CORINE, 2012
Origin of data: CORINE, 2012
© EuroGeographics Association for administrative boundaries

Stable Elements of Land Use Cover 1990 - 2006
Øresund Region

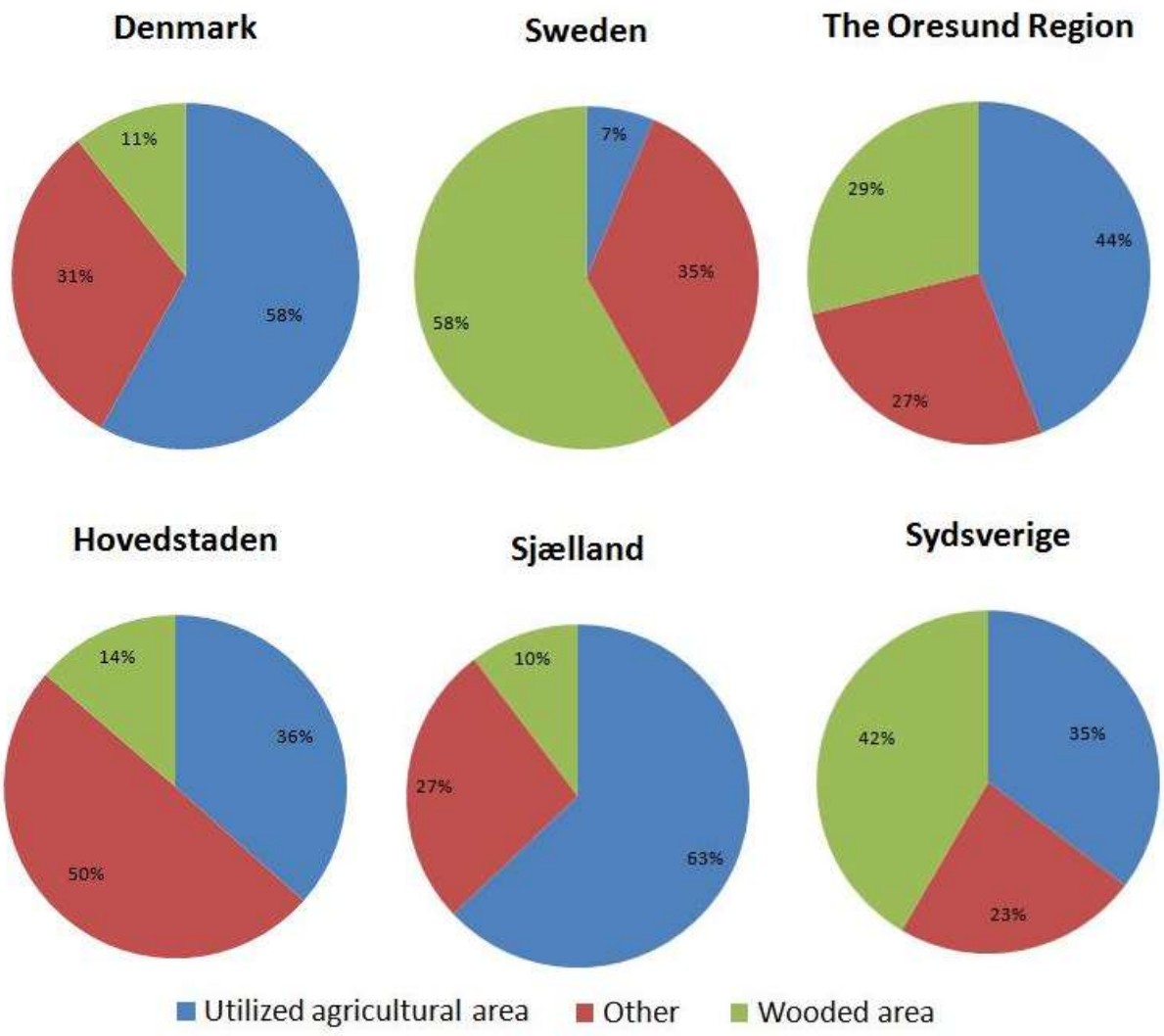


Stable Land Use Types - 1,000m grid

- Urban cores and metropolitan areas
- Suburban residential and economic areas
- Special urban areas with relation relationships to the marine environment
- Arable land in predominantly rural areas
- Pastures and agricultural mosaics in peri-urban or rural community areas
- Forested areas and agricultural mosaics in peri-urban areas
- Rural forest
- Pastures, agricultural mosaics and mixed forest in predominantly rural areas
- Transitional woodland or sparsely vegetated areas
- Lands primarily associated with water courses
- Sparse vegetation, wetlands, water bodies and snow or arctic conditions

- Points of investigation
- Areas outside the case study region
- National boundary
- Regional boundary

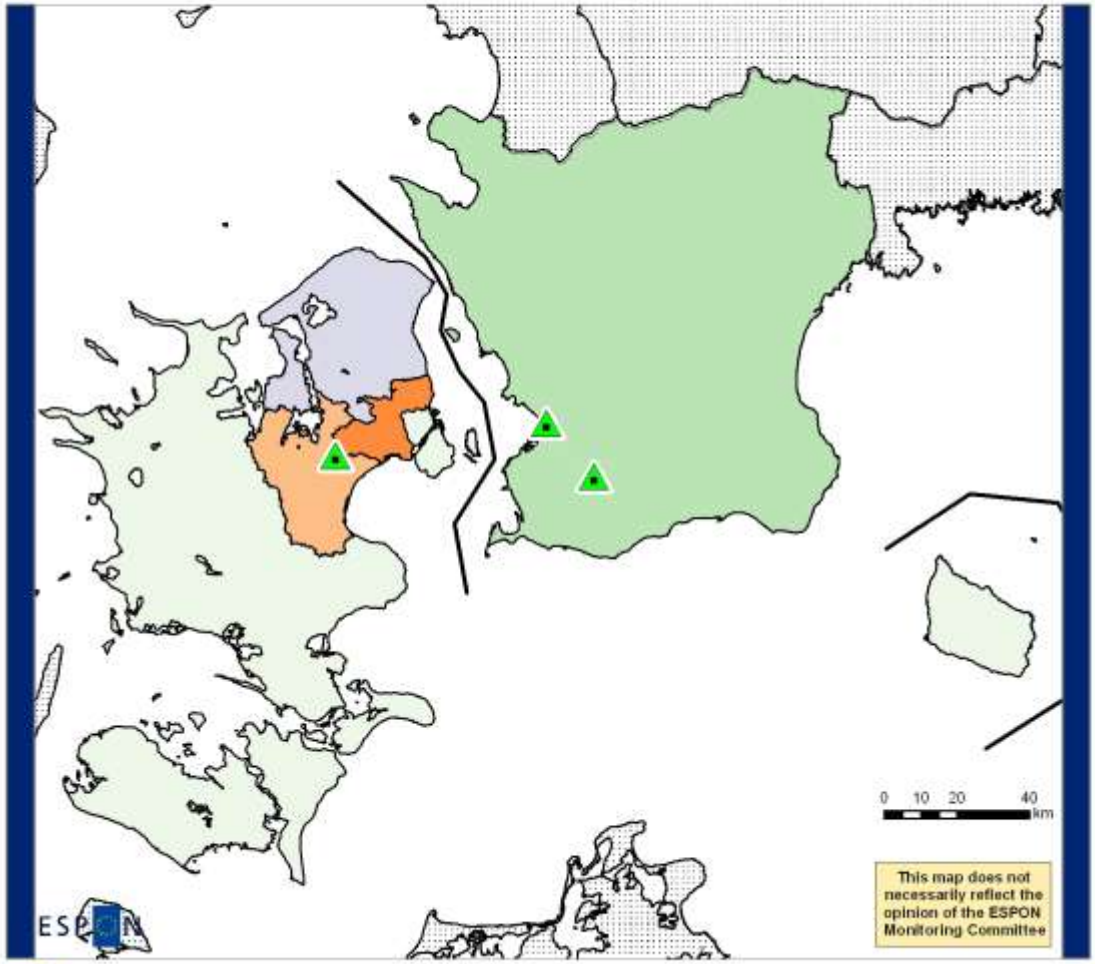
Regional level: NUTS X
Source: CORINE, 2012
Origin of data: CORINE, 2012



Structure of land use in 2009

Source: Eurostat

Land Use Change Typology 1990 – 2006
Øresund Region



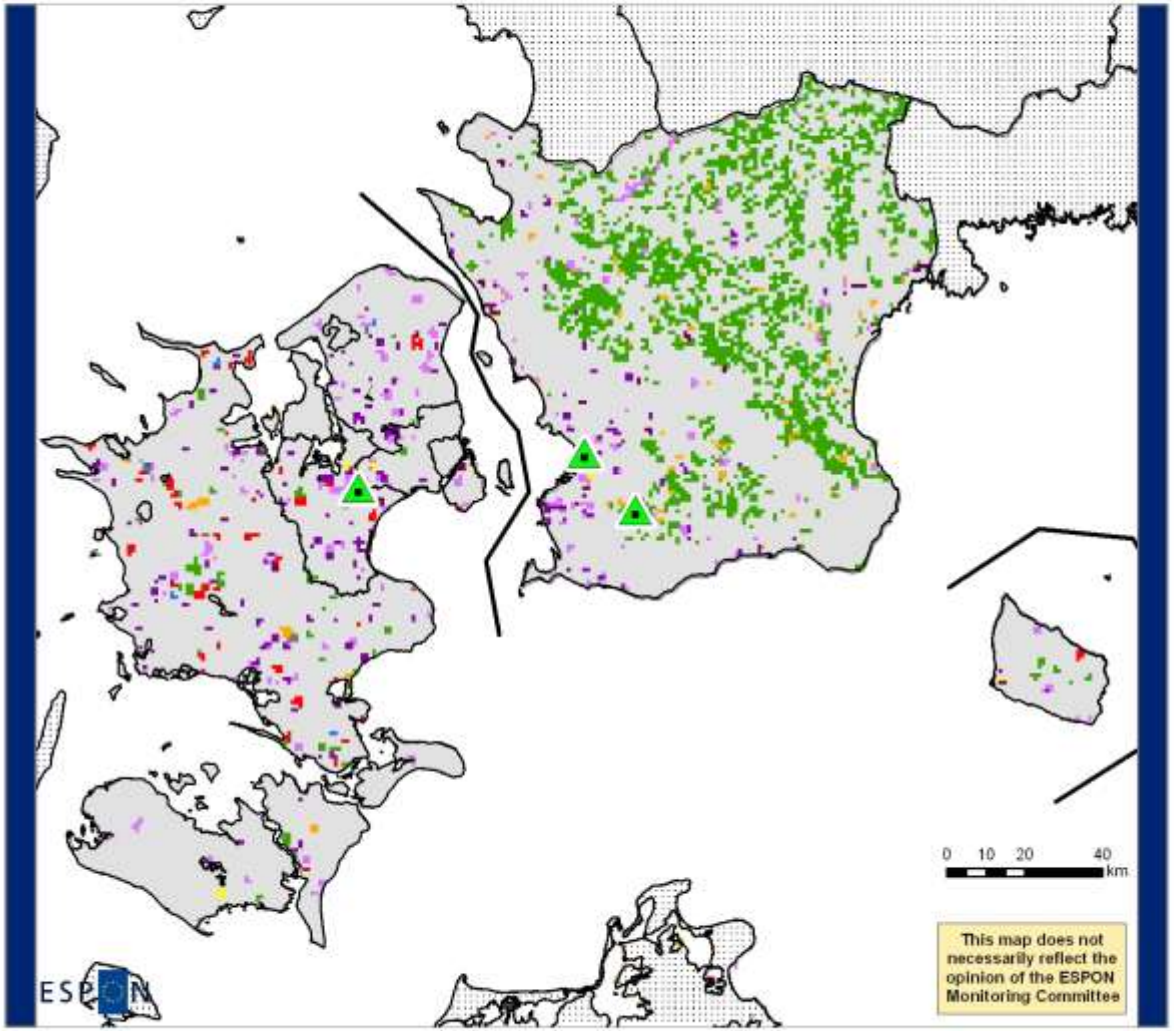
Land Use Change Types

- Very high intensification with artificial surfaces replacing mainly natural areas
- Very high intensification due to specific areas of residential and economic sprawl
- High intensification due to residential and economic sprawl surrounding urban conversion
- Medium-high intensification due to diverse urban processes
- Medium-high intensification due to diverse urban processes
- Medium intensification due to some urban sprawl combined mainly with forest conversions
- Medium intensification - dynamic mix between agricultural/forest changes and urban sprawl
- Low intensification, dynamic mix between agricultural/forest changes and limited urban sprawl
- Low intensification mainly due to agriculture and forest changes
- High extensification due to forest and agricultural changes but specifically the withdrawl of farming

- Points of investigation
- National boundary
- Regional boundary
- Areas outside the case study region

Land cover flows are shown for the 1990-2006 period in Denmark and the 2000-2006 period in Sweden

Land Cover Flows 1990-2006
Øresund Region



Land Cover Flow Types

- Urban land management
- Urban residential sprawl
- Sprawl of economic sites and infrastructures
- Agriculture internal conversions
- Conversion from other land cover to agriculture
- Withdrawal of farming
- Forests creation and management
- Water bodies creation and management
- Changes of Land Cover due to natural and multiple causes

- Points of investigation
- National boundary
- Regional boundary
- Case study region
- Areas outside the case study region

Land cover flows are shown for the 1990-2006 period in Denmark and the 2000-2006 period in Sweden

- Changes in urban core and urban and economic sprawl are strictly connected to the economy transformation from traditional spatially concentrated urban activities to more dispersed activities of high-tech and R&D sectors. Urban and economic sprawl is quite controlled according to “finger plan”, which indicates major development axis of Capital Region along sea coast and main routes.

- A parallel processes occurred on Swedish side, which accelerated after constructing Oresund Bridge. On peri-urban and rural areas increase of different forms of leisure activities function instead of intensive agriculture is significant. Intensive agriculture is gradually shifted to Jutland Penninsula and, finally, to new member states. However this process is much elder than since beginning of 1990s.

Source: based on *Case studies report - Oresund* (Mariola Ferenc & Marcin Mazur, 2012)

Conclusions

- increasing importance of multifunctionality
- intensive, trademark agricultural transfered to more organic, focus on producing good quality food
- recreation and the production of bioenergy
- strong pressure of new investments of agglomeration development, especially new settlements. Knowledge industry and research activities are moving to rural or coastal areas, because people would work in nice landscape and clean conditions

- One of the most important results is that the functional changes of land use in rural areas are far stronger than changes in land cover structure. Also we should say, that changes in semiurban areas are more stronger than in cities and in rural areas.

Source: based on *Case studies report - Oresund* (Mariola Ferenc & Marcin Mazur, 2012)

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Thank you for attention

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