



Green economy: a development option and challenge for sparsely populated areas?

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Nordregio



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Preamble:

- Two issues which needs to be taken into scrutiy before moving ahead:
- What are "Sparsely populated areas"?
- What is "Green Economy"?



1: Definitions



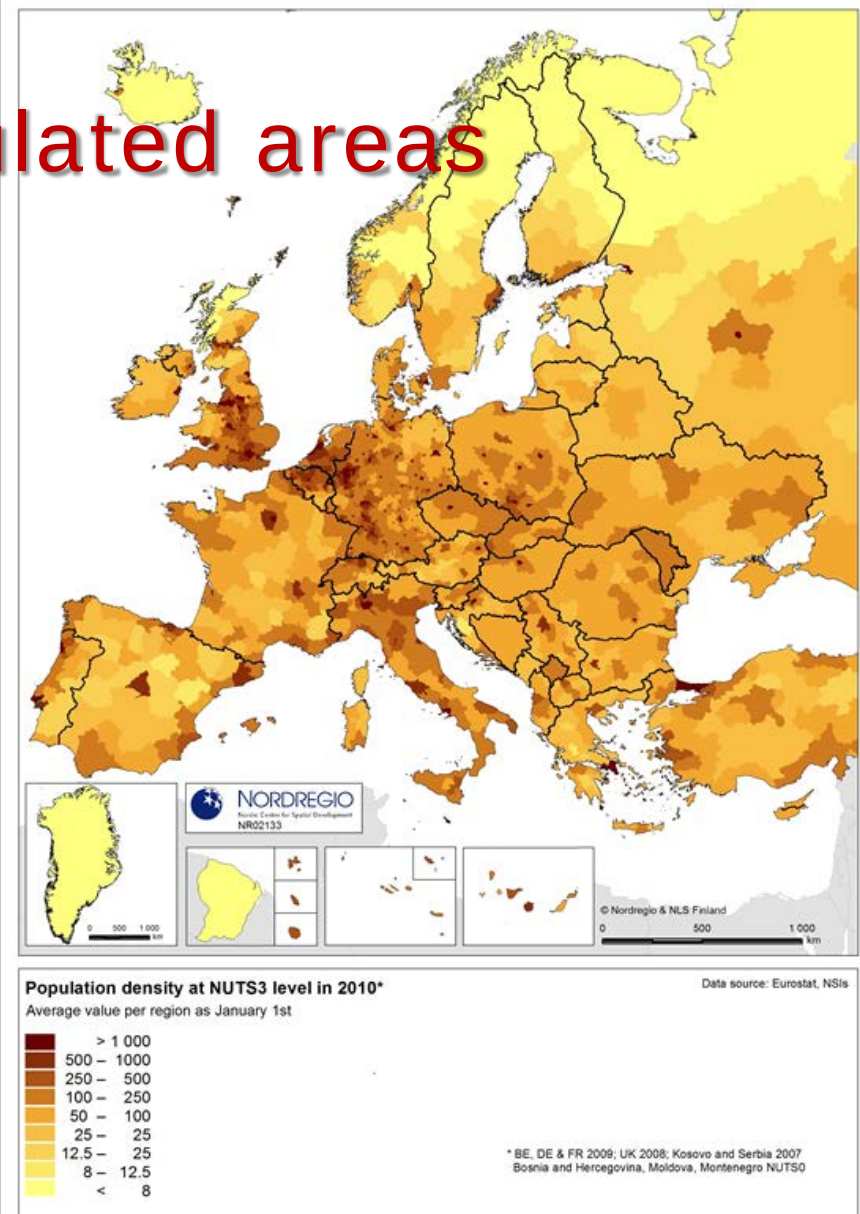
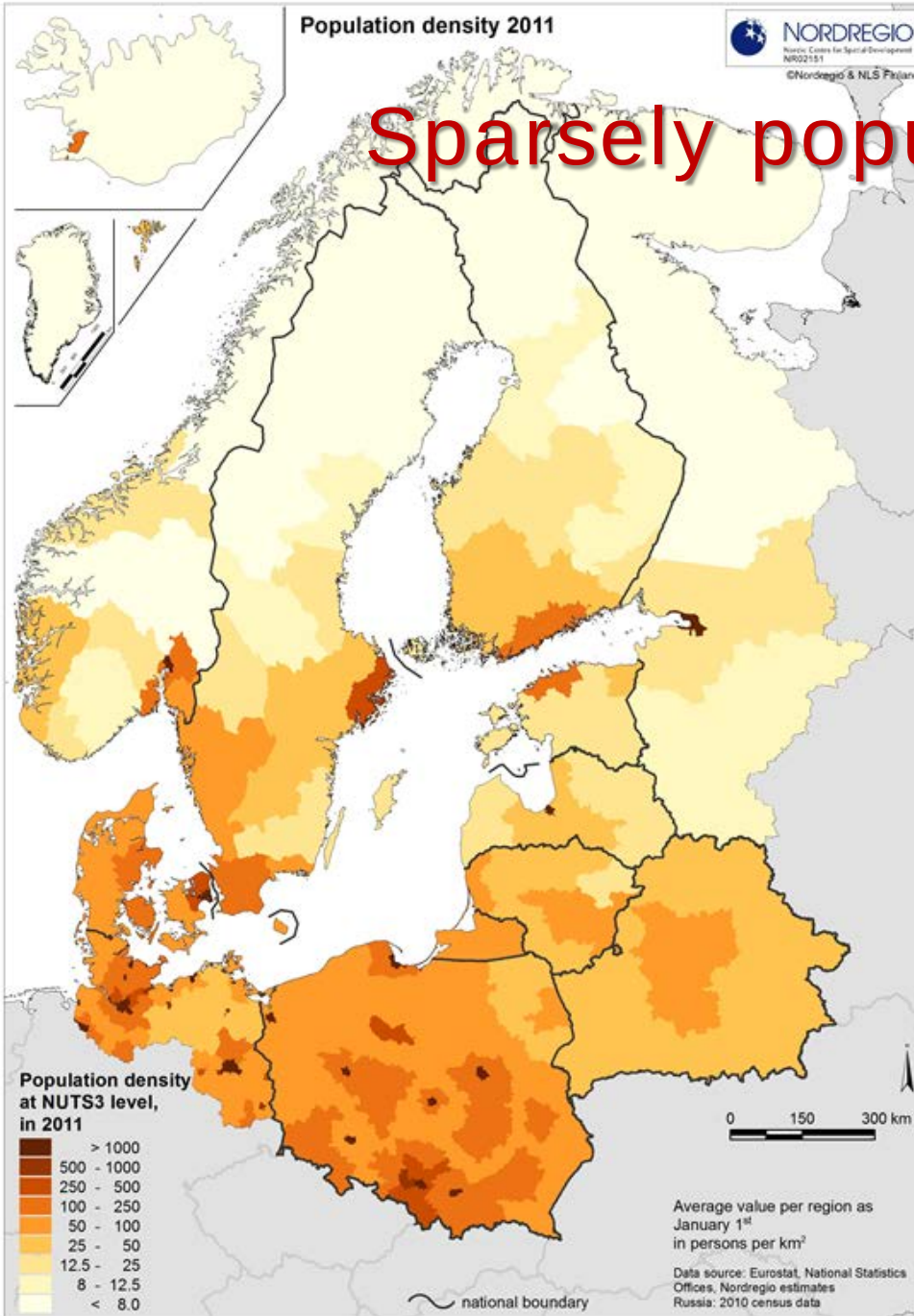
Sparsely populated

- Sparsely populated simply means that there aren't very many people living there. Usually this is because the climate (desert, polar region) or the terrain (mountaintop, swamp) makes it difficult to support a large population.
- Read more:
http://wiki.answers.com/Q/What_does_sparsely_populated_mean#ixzz2CMxy1fMK



Population density 2011

Sparsely populated areas



Green Economy concept in EU policy

- Five headline targets:
 - increase employment to 75% of the working-age population;
 - invest 3% of the EU's GDP in research and development;
 - ensure that the energy and climate targets are met (with a potential to elevate emissions reductions to 30%);
 - increase education rate to 90% high school and 40% tertiary;
 - reduce the number of people at risk of poverty by 20 million.
- Achieved primarily through three broad measures:
 - promotion of renewable energy to achieve up to 20% of total energy consumption,
 - modernisation of the transport sector and
 - improved energy efficiency.



Needed transitions

- Greening of the economy involves a series of transitions
- The most important pursuits in terms of use and production of energy include:
 - the pursuit of renewable resources;
 - the pursuit of energy efficiency;
 - the pursuit of electricity, biomass and natural gas based transport;
 - the pursuit of renewable electricity demand flexibility;
 - electricity storage options; and
 - potentially key transition technologies such as carbon capture and storage.



Green Economy and Multi-functionality

- The concept was developed in the late 1990s to highlight the need to find ways to remunerate non-agricultural roles for rural development (i.e. provision of environmental public goods) or “rural viability”.
- The key elements of multifunctionality are:
 - the existence of multiple commodity and non-commodity outputs that are jointly produced by agriculture;
 - and the fact that some of the non-commodity outputs exhibit the characteristics of externalities or public goods, with the result that markets for these goods do not exist or function poorly.”



Green Economy and Multi-functionality

- The concept is moving into a broader rural economic sense, from agriculture to other land-based industries, especially forestry
- Green economic development in Europe is shaped by new conceptualizations of rural landscapes, with areas previously characterized by exclusivity and monoculture can physically and conceptually accommodate non-agricultural activities, such as clean energy production and green manufacturing



Green Economy and Multi-functionality

- This implies increasing multi-functionality of non-urban areas, as well as higher degree of territorial dispersion of the new functions/activities
- This is due to many new green activities are intrinsically disperse from the spatial perspective (e.g. windmills) and/or linked to diverse agroecological conditions (e.g. biomass production)



Green Economy and the CAP

- Support should therefore be granted to operations with this aim, including the access to Information and Communication Technologies and the development of fast and ultra-fast broadband. In line with these objectives, development of services and infrastructure leading to social inclusion and reversing trends of social and economic decline and depopulation of rural areas should be encouraged.

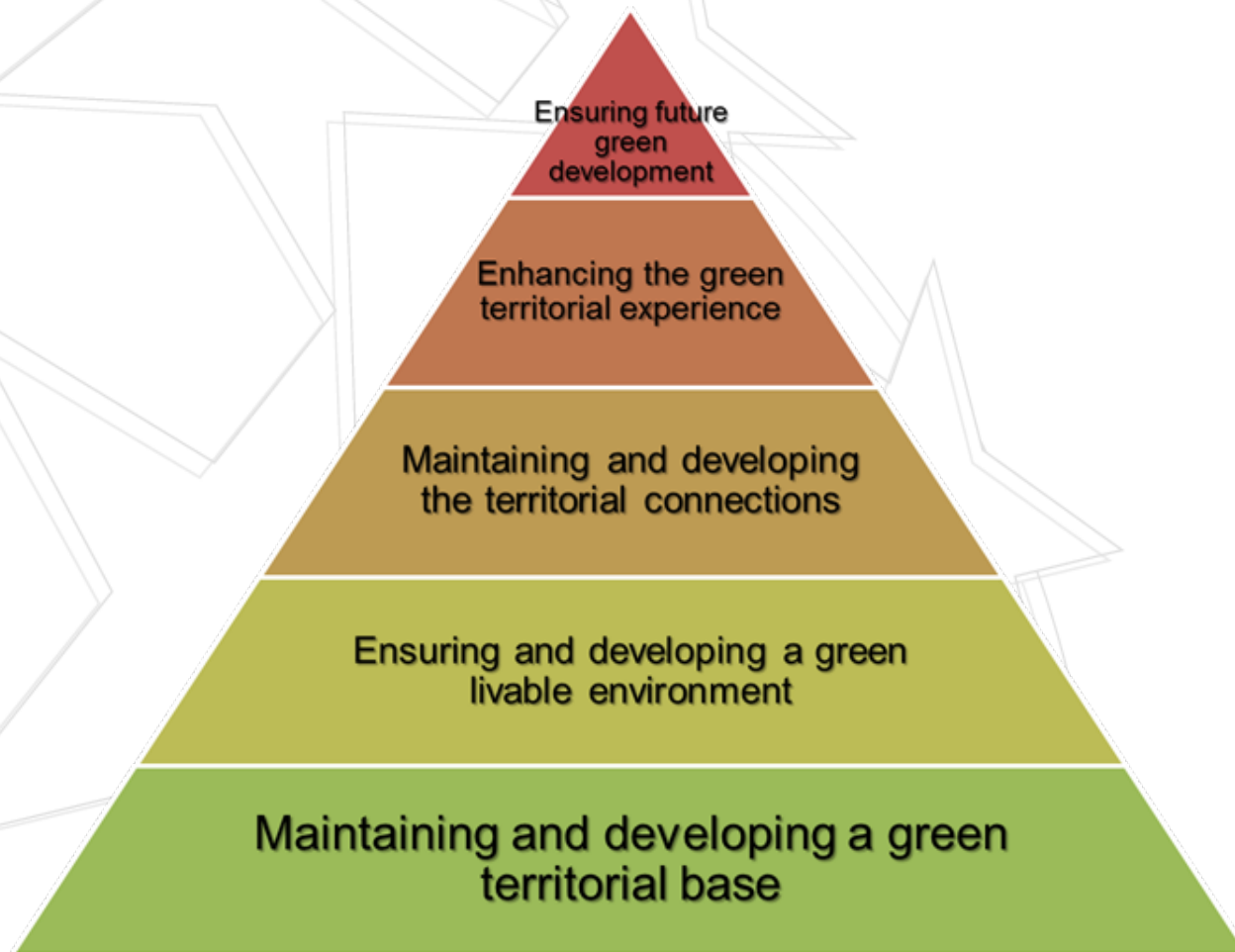


Green Economy and the CAP

- Amongst them is the "greening" of direct payment. To strengthen the environmental sustainability of agriculture and enhance the efforts of farmers, the Commission is proposing to spend 30% of direct payments specifically for the improved use of natural resources. Farmers would be obliged to fulfil certain criteria such as crop diversification, maintenance of permanent pasture, the preservation of environmental reservoirs and landscapes



Components of Green Growth



Green Growth Drivers

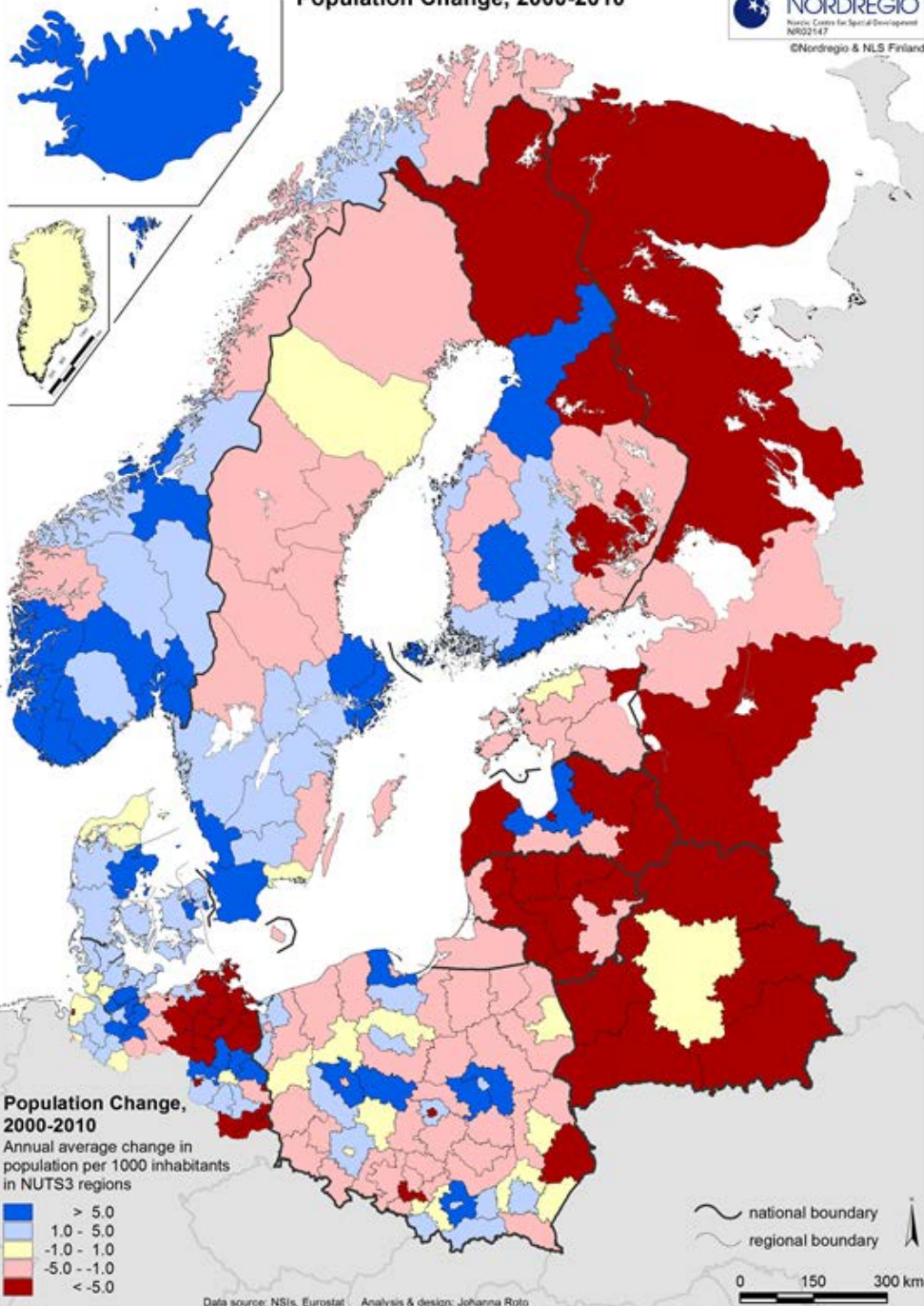
- Economic competitiveness
- Social cohesion
- Environment relations
 - Land use multifunctionality
 - Production Innovation
 - Ecodesign
 - Consumption-side enablers



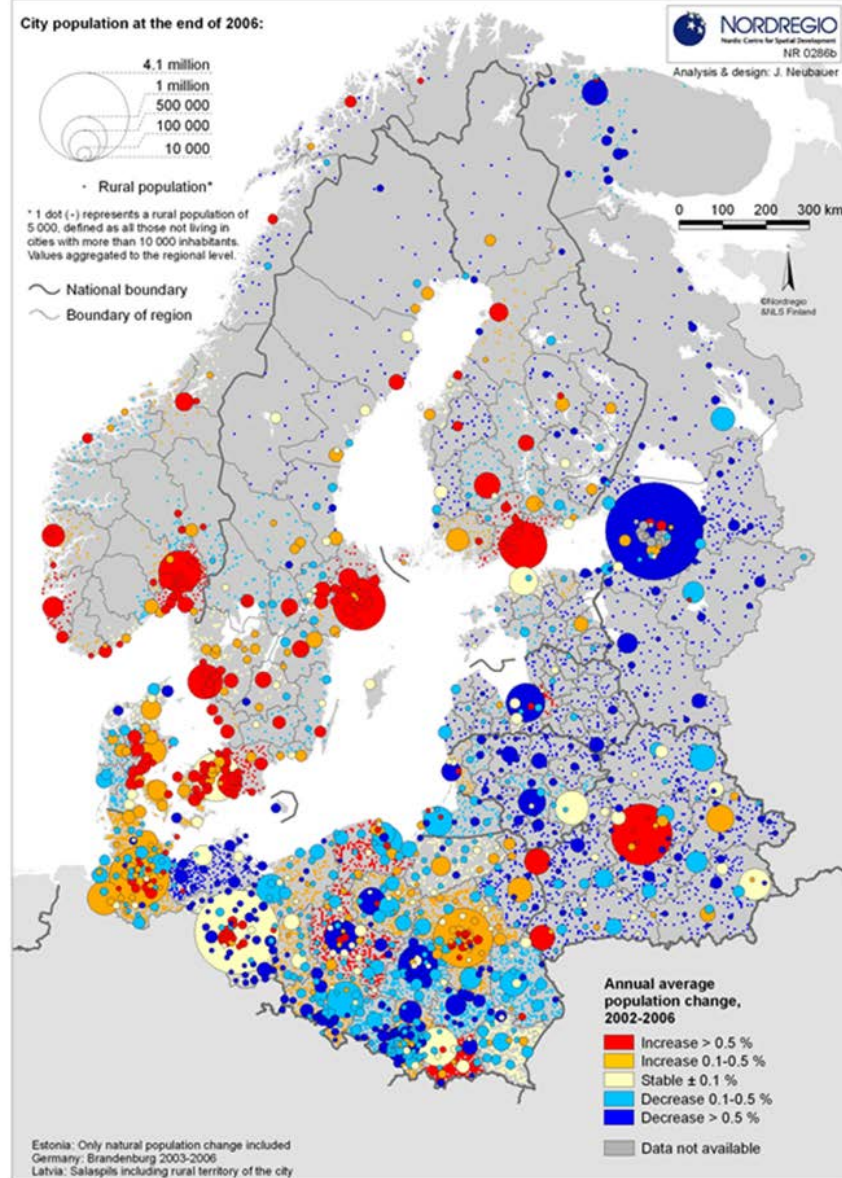
2. Options

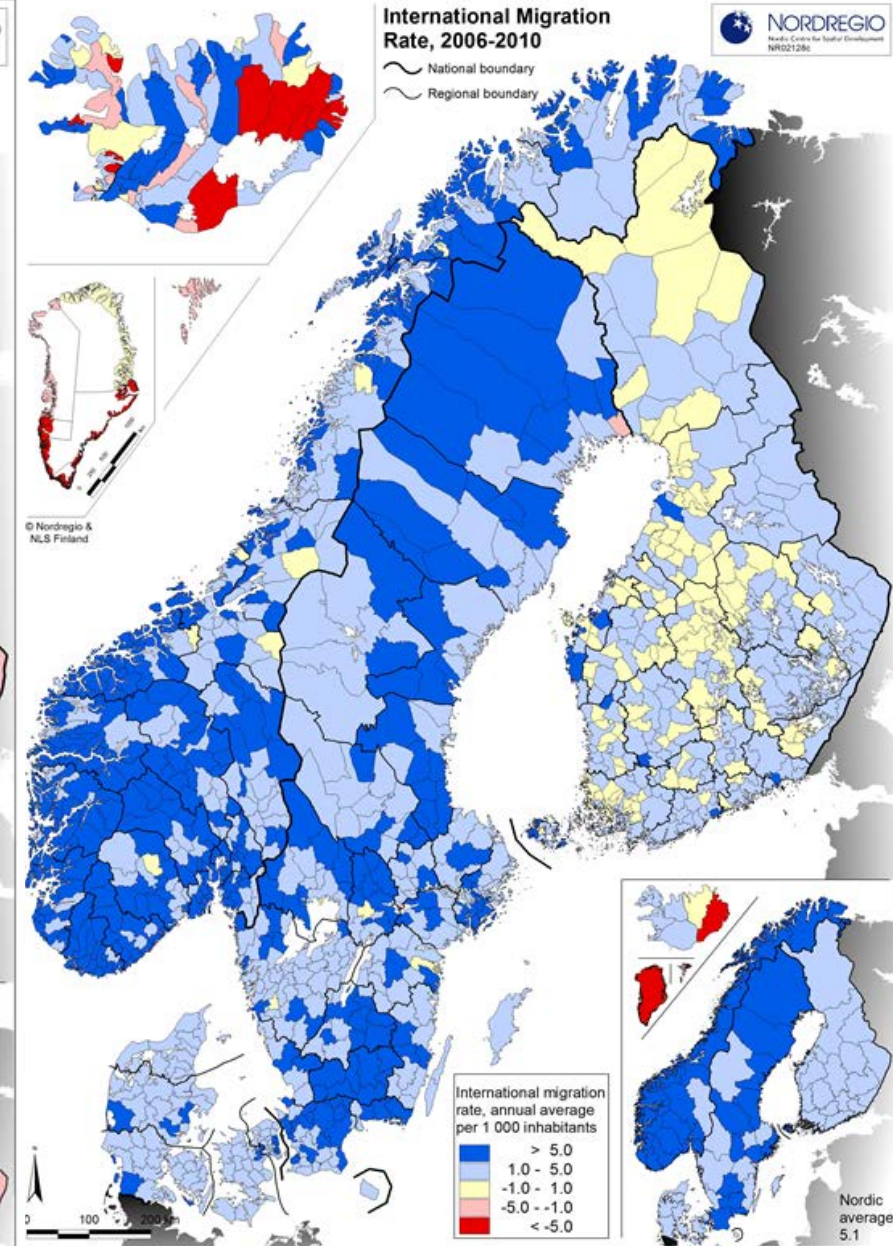
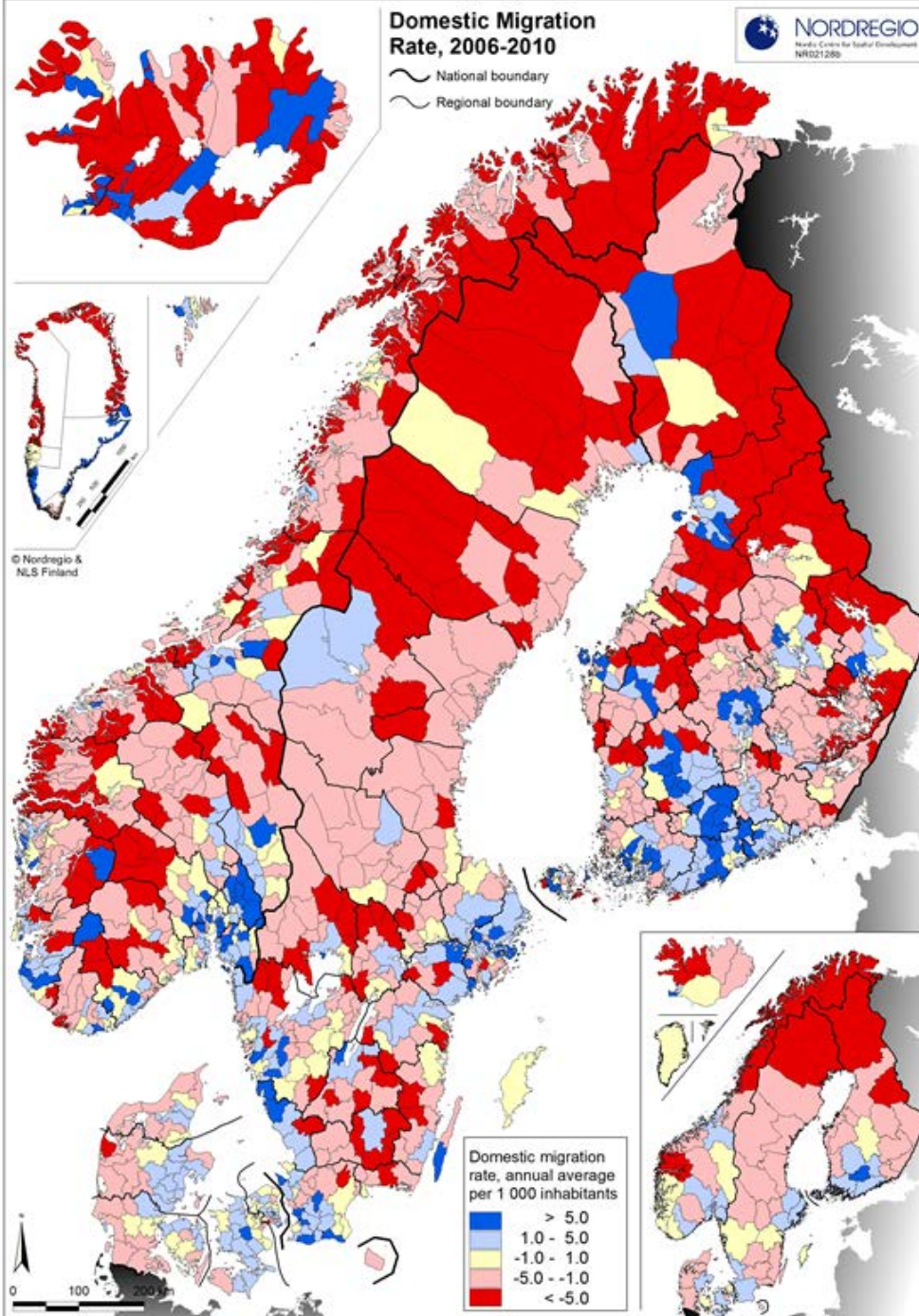


Population Change, 2000-2010

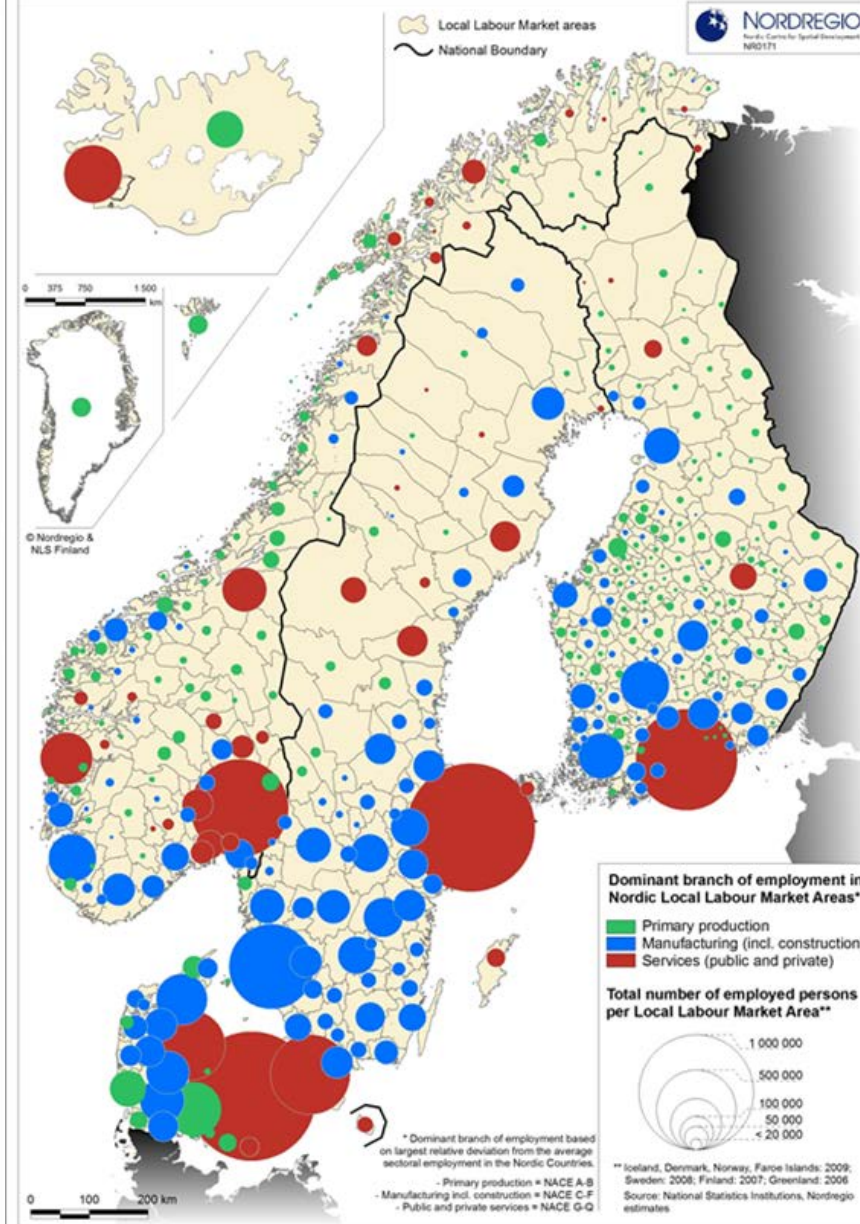
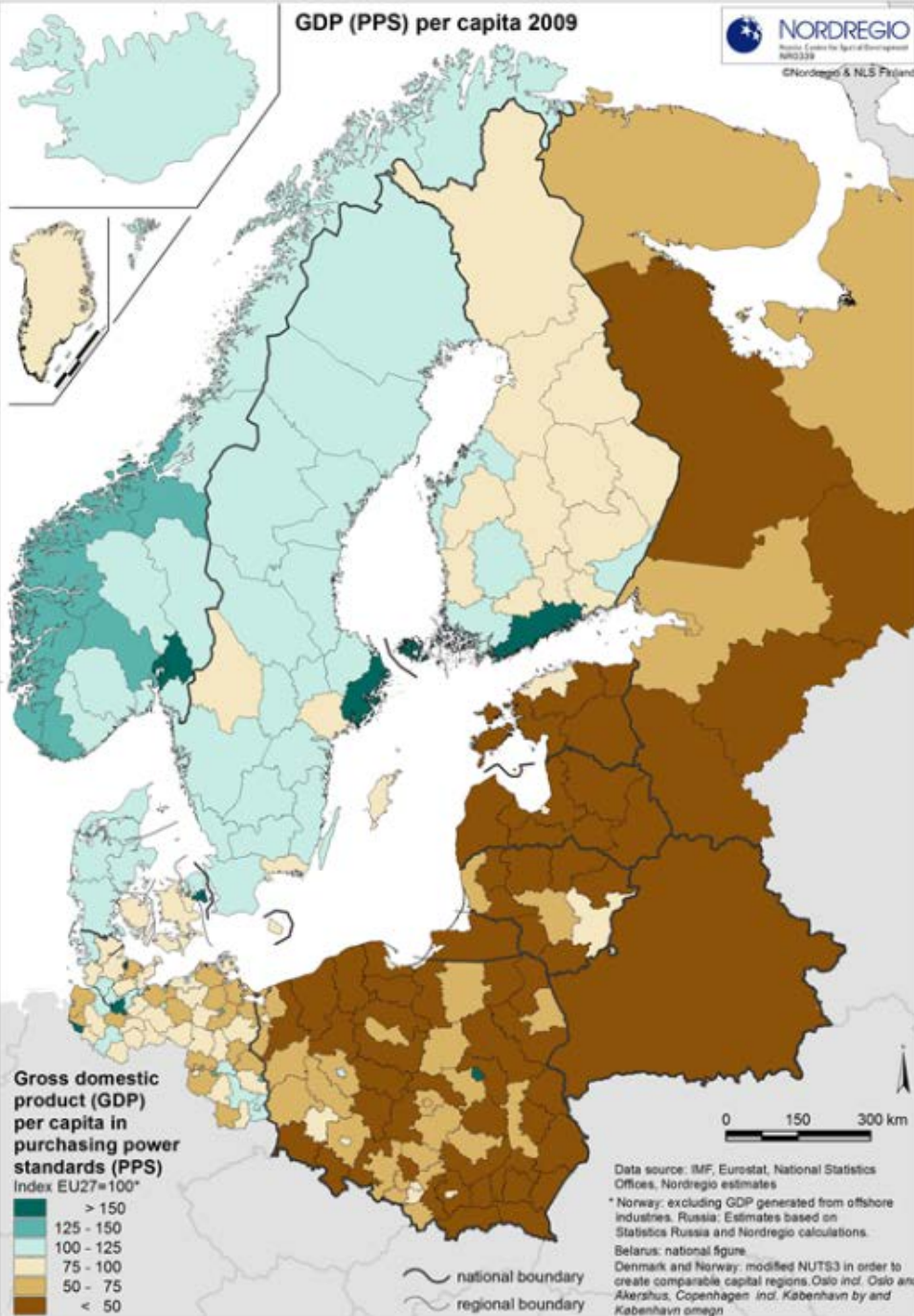


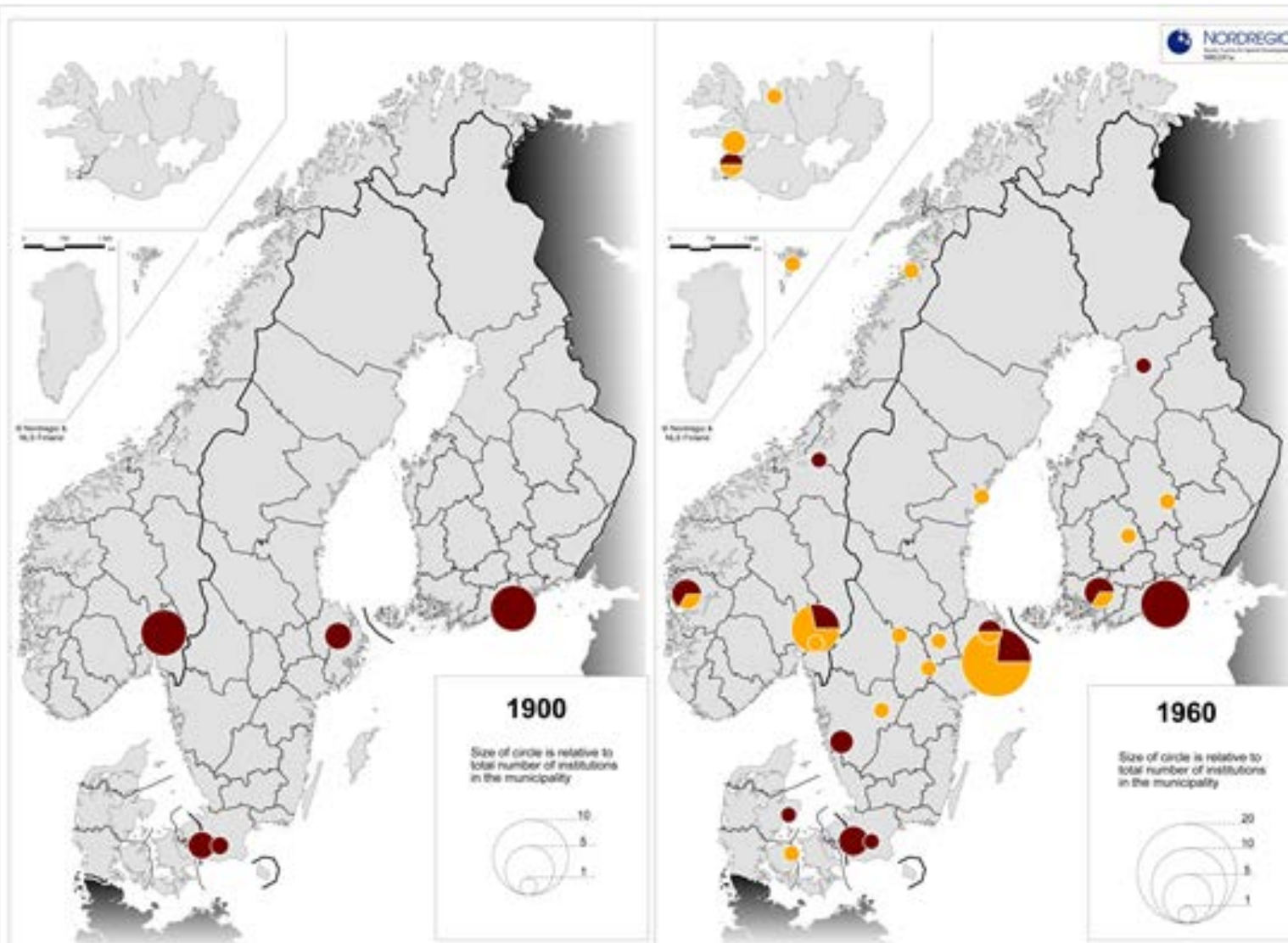
City population at the end of 2006:





GDP (PPS) per capita 2009

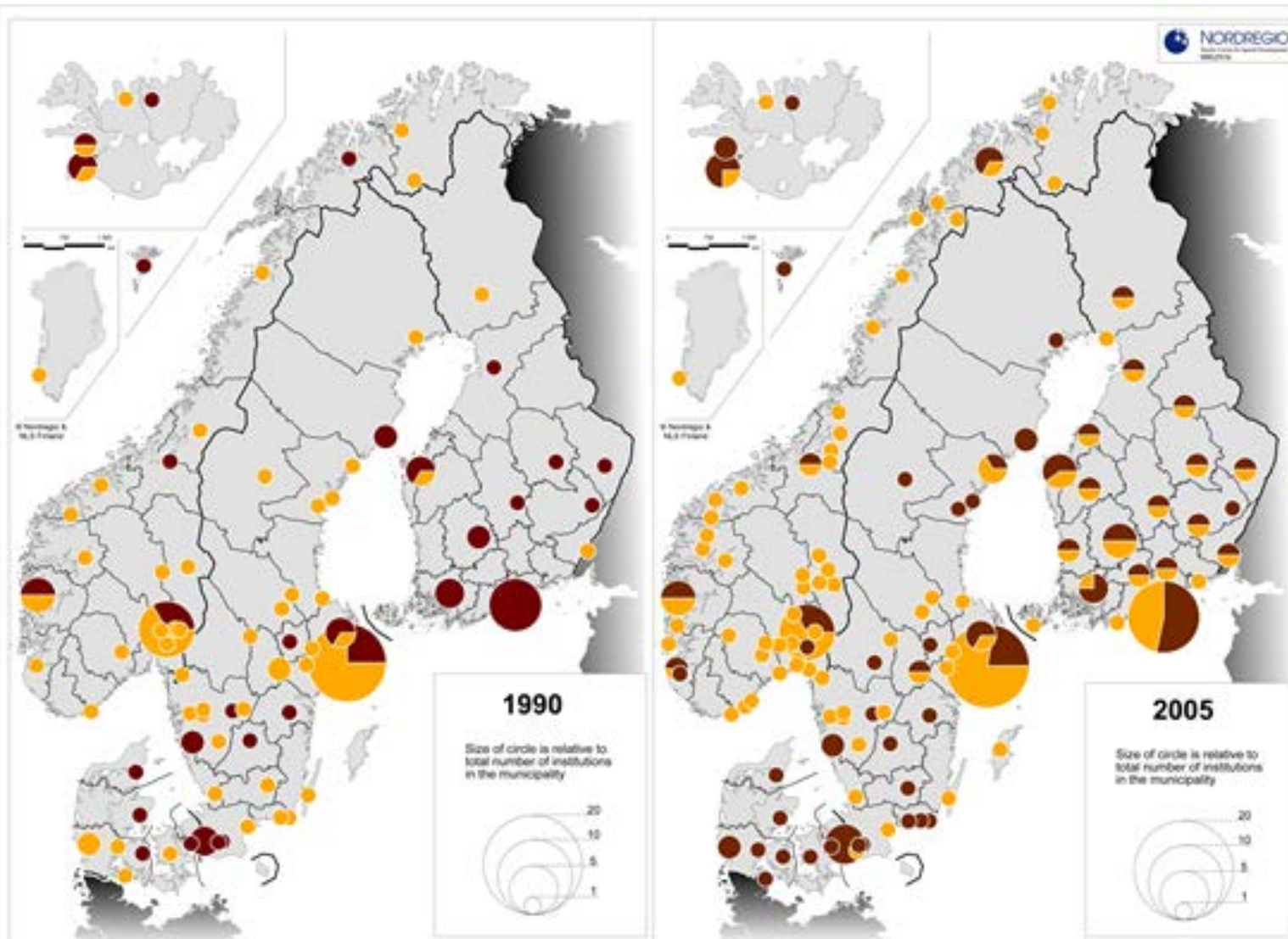




Historical development of High Education Institutions in the Nordic Countries: 1900 to 1960

Merged capital regions: Copenhagen incl. Frederiksberg, Gladsaxe, Glostrup & Herlev; Helsinki, Espoo, Kauniainen & Vantaa; Oslo, Bærum & Skedsmo; Stockholm & Huddinge

Sources: a) www.eurydice.org; b) National ministerial sources; c) HEI home pages (all universities, university colleges in DK, SE, FI, NO, IS); all accessed in February 2009



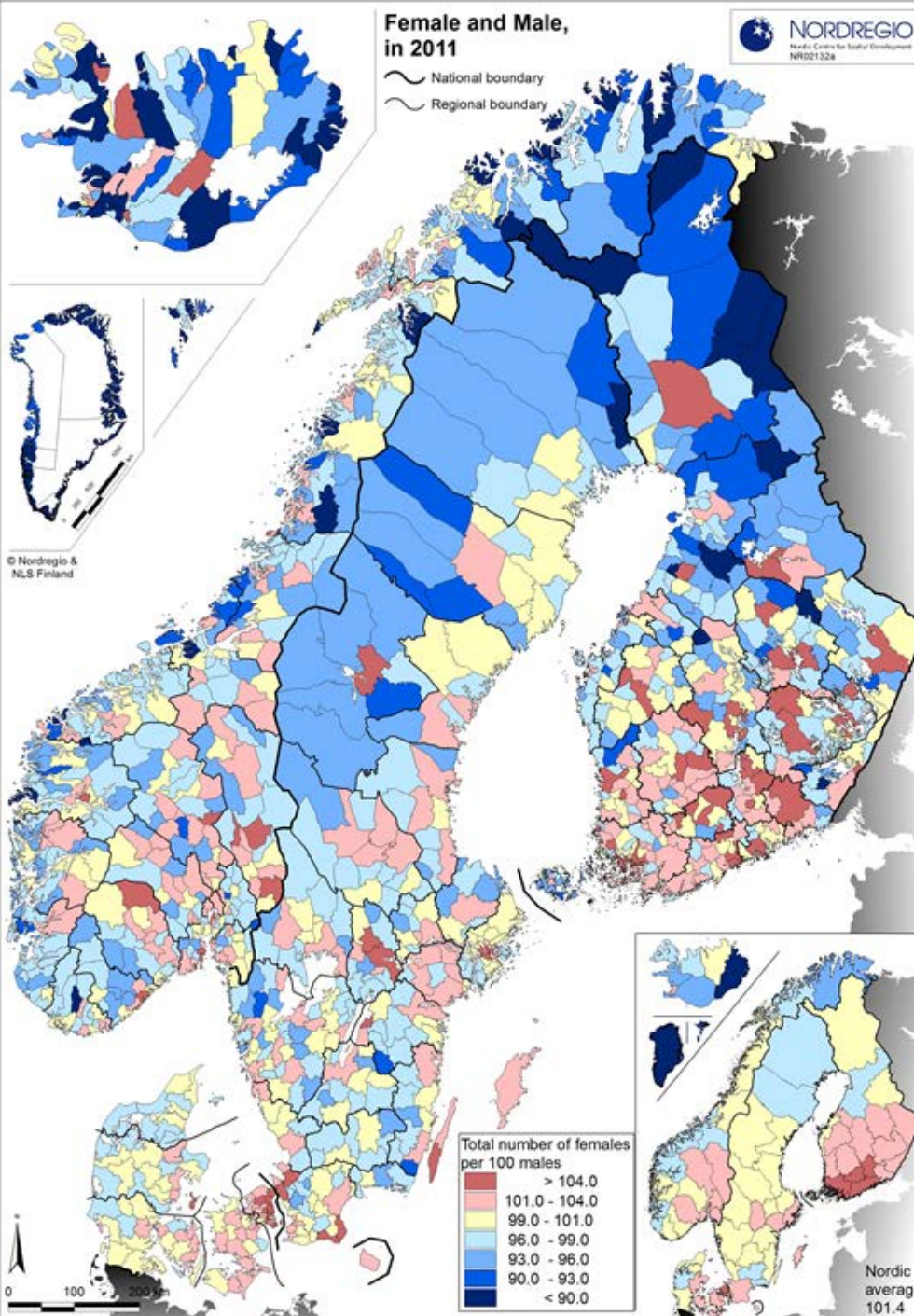
Historical development of High Education Institutions Campuses in the Nordic Countries: 1990 to 2005

Merged capital regions: Copenhagen incl. Frederiksberg, Gladsaxe, Glostrup & Herlev; Helsinki, Espoo, Kauniainen & Vantaa; Oslo, Bærum & Skedsmo; Stockholm & Huddinge

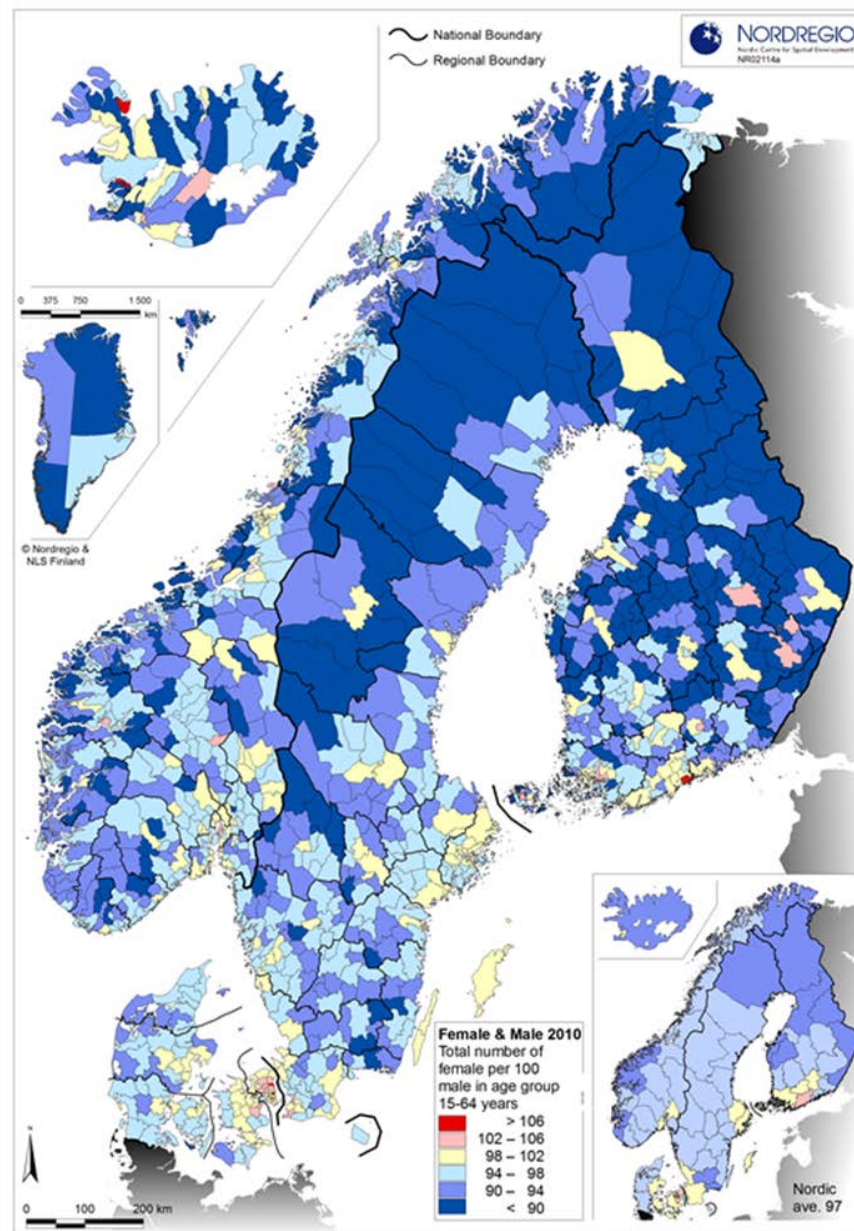
Sources: a) www.eurydice.org; b) National ministerial sources; c) HEI home pages (all universities, university colleges in DK, SE, FI, NO, IS); all accessed in February 2009

Female and Male, in 2011

— National boundary
— Regional boundary



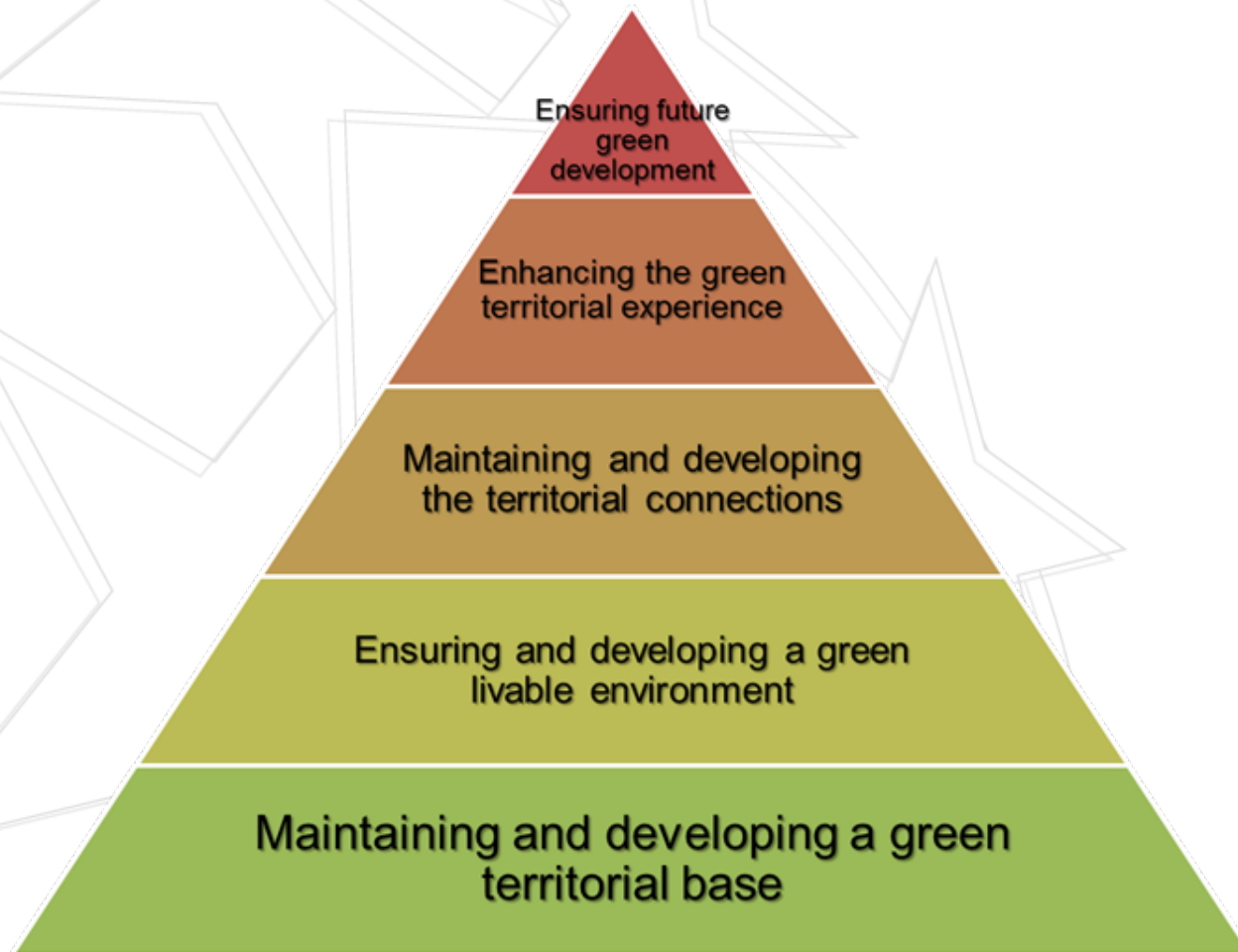
— National boundary
— Regional boundary

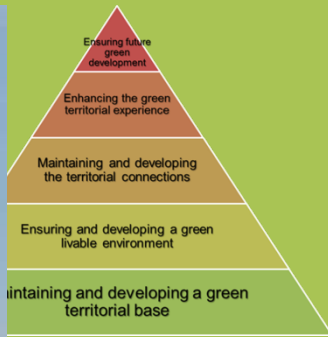


3. Opportunities

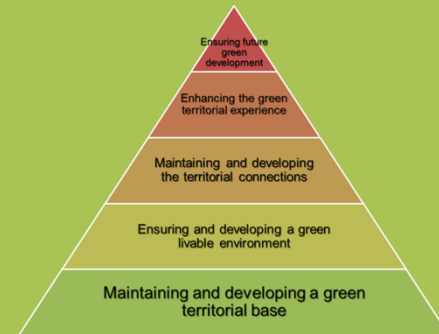


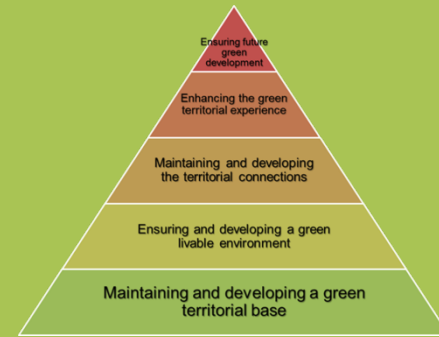
Components of Green Growth

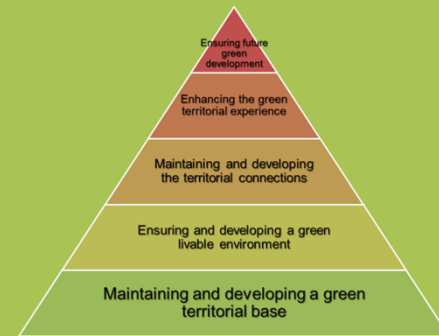




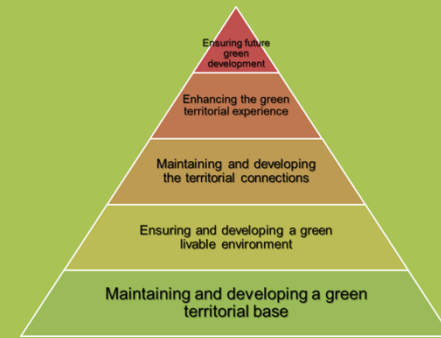
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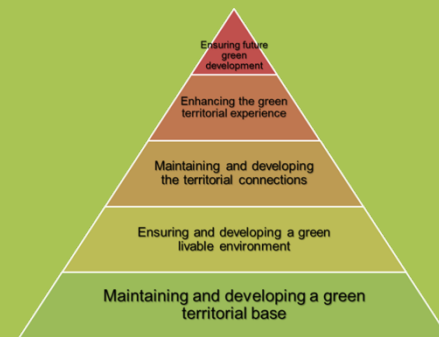
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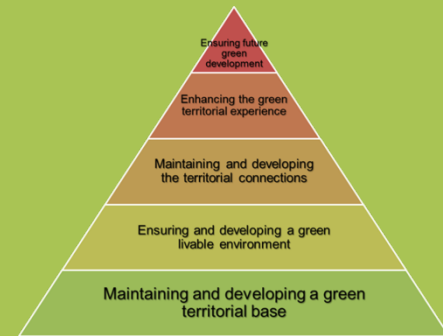
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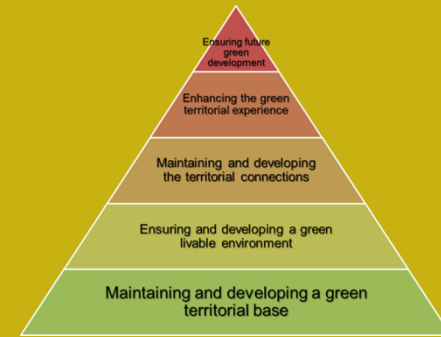
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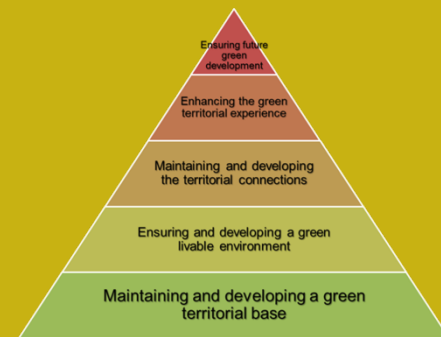


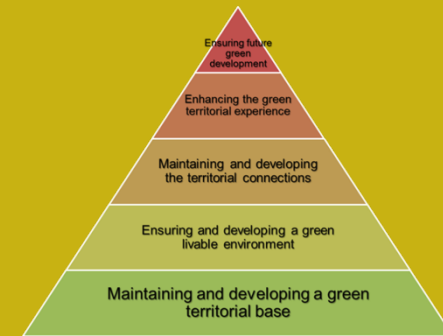
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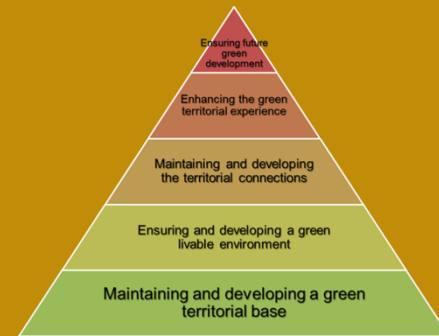
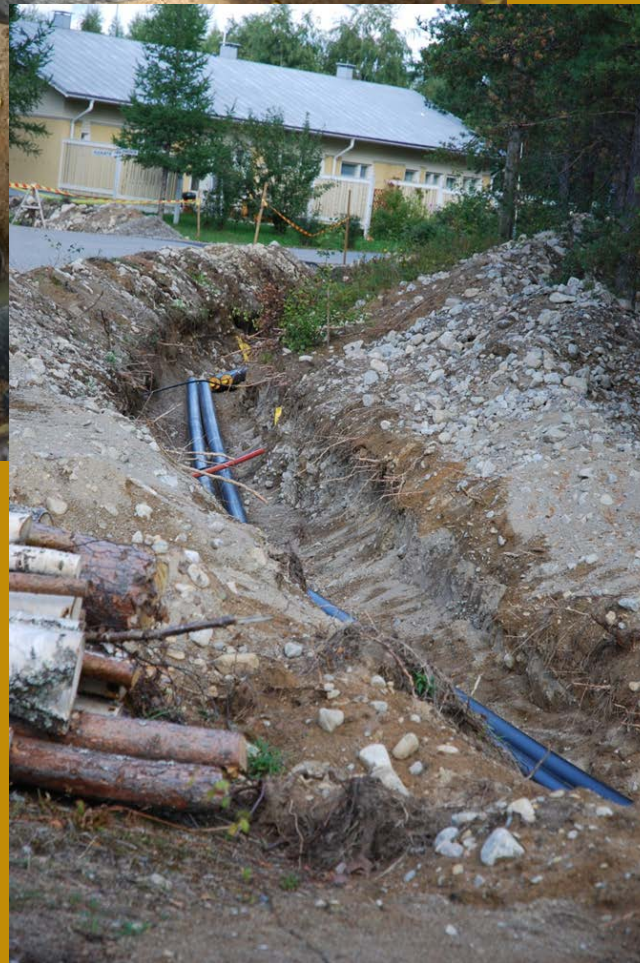




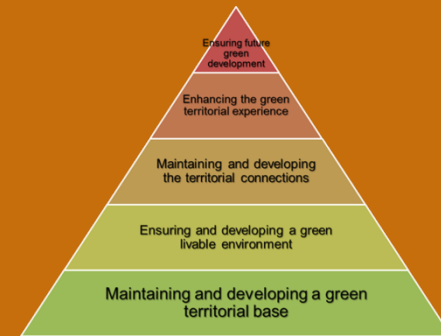
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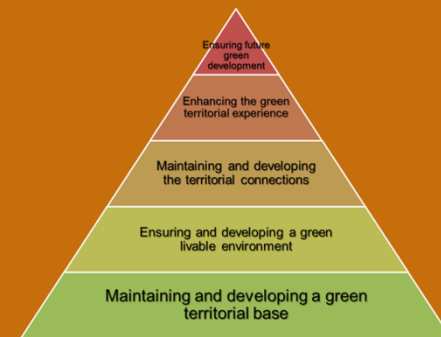




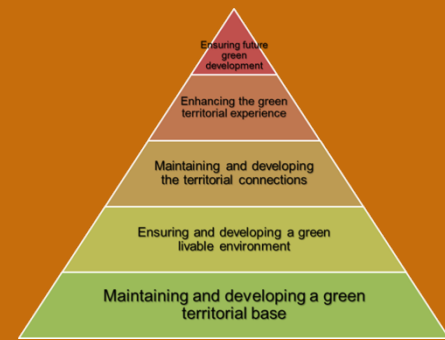


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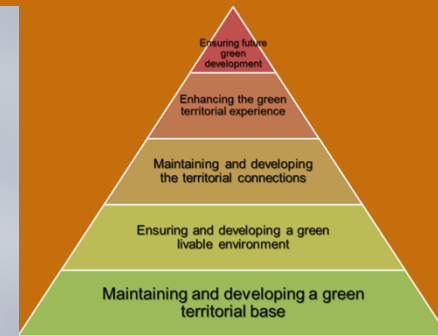




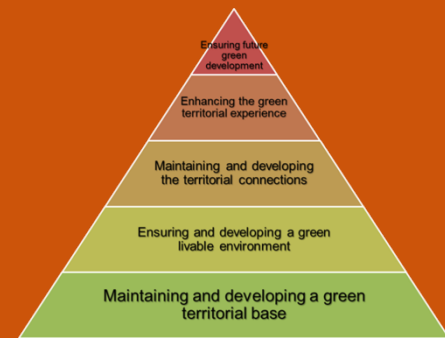
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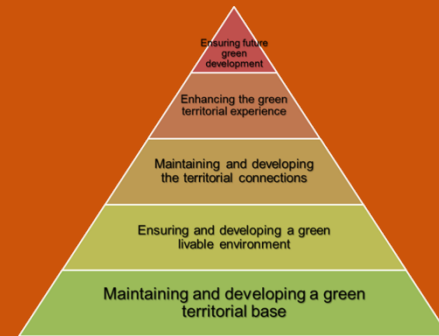
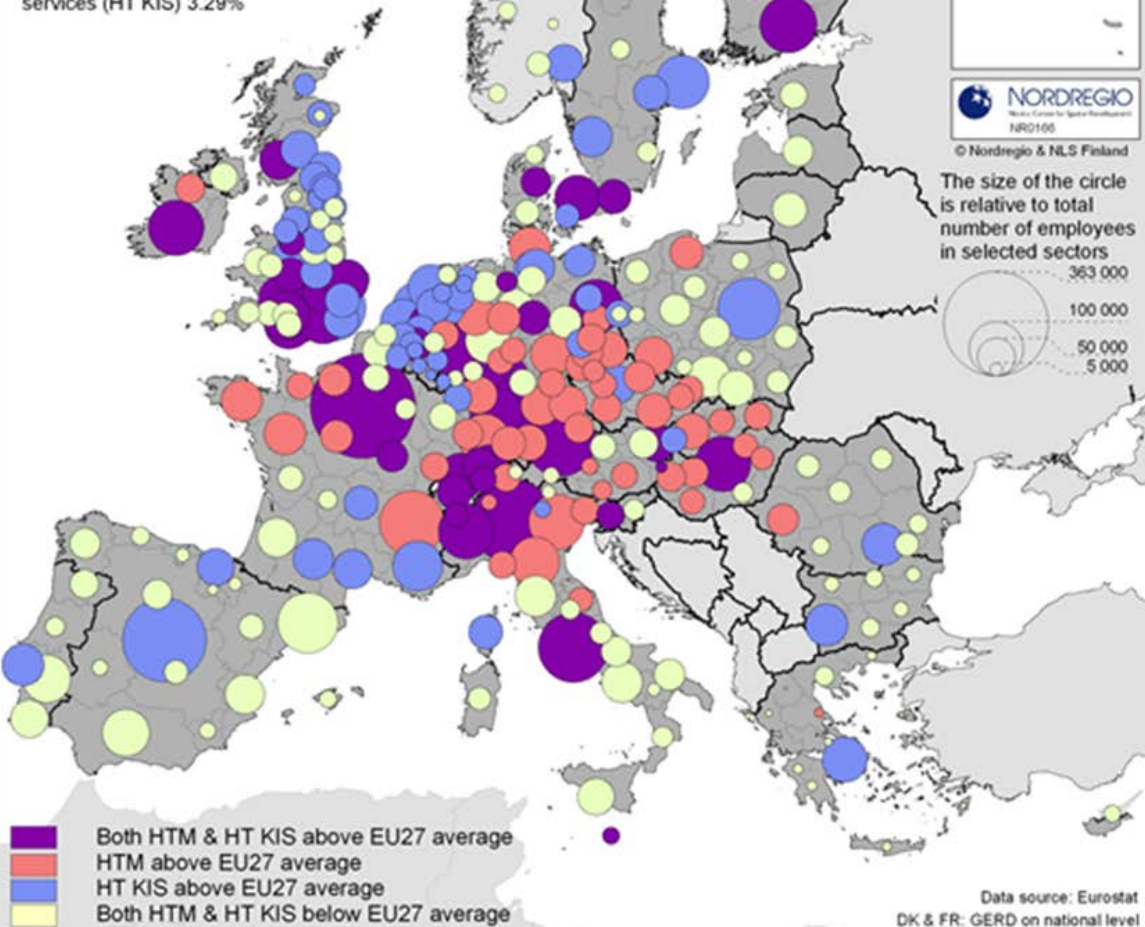


High-tech manufacturing & knowledge-intensive high-technology service hubs in 2007



Employment in the High-tech manufacturing & knowledge-intensive high-technology service as a % share of total employment compared to EU27 average of:

- High-tech manufacturing (HTM) 1.11%
- Knowledge-intensive high-technology services (HT KIS) 3.29%

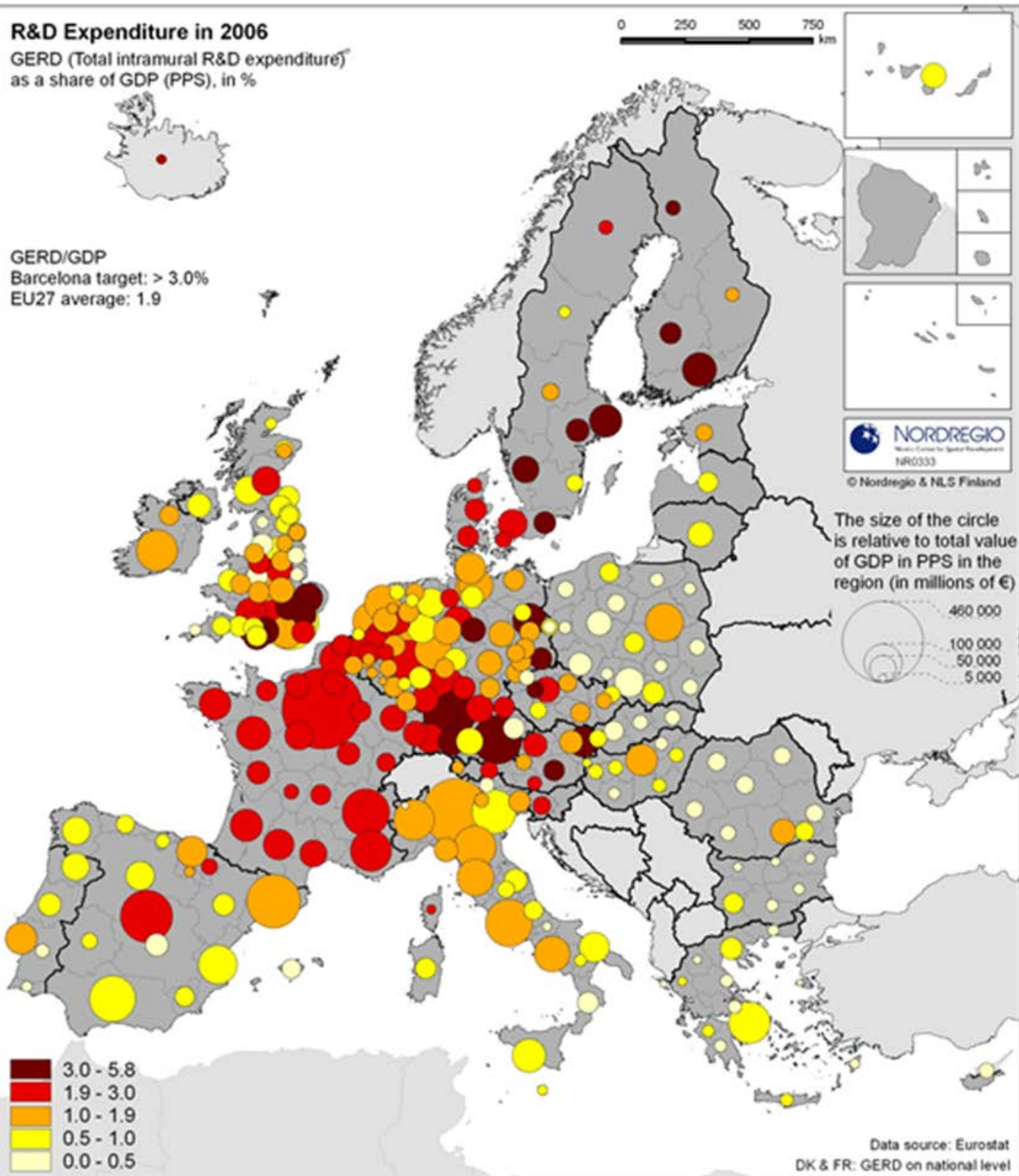


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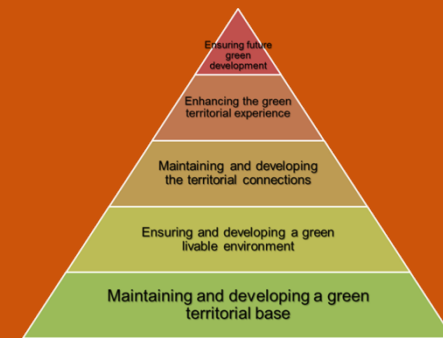
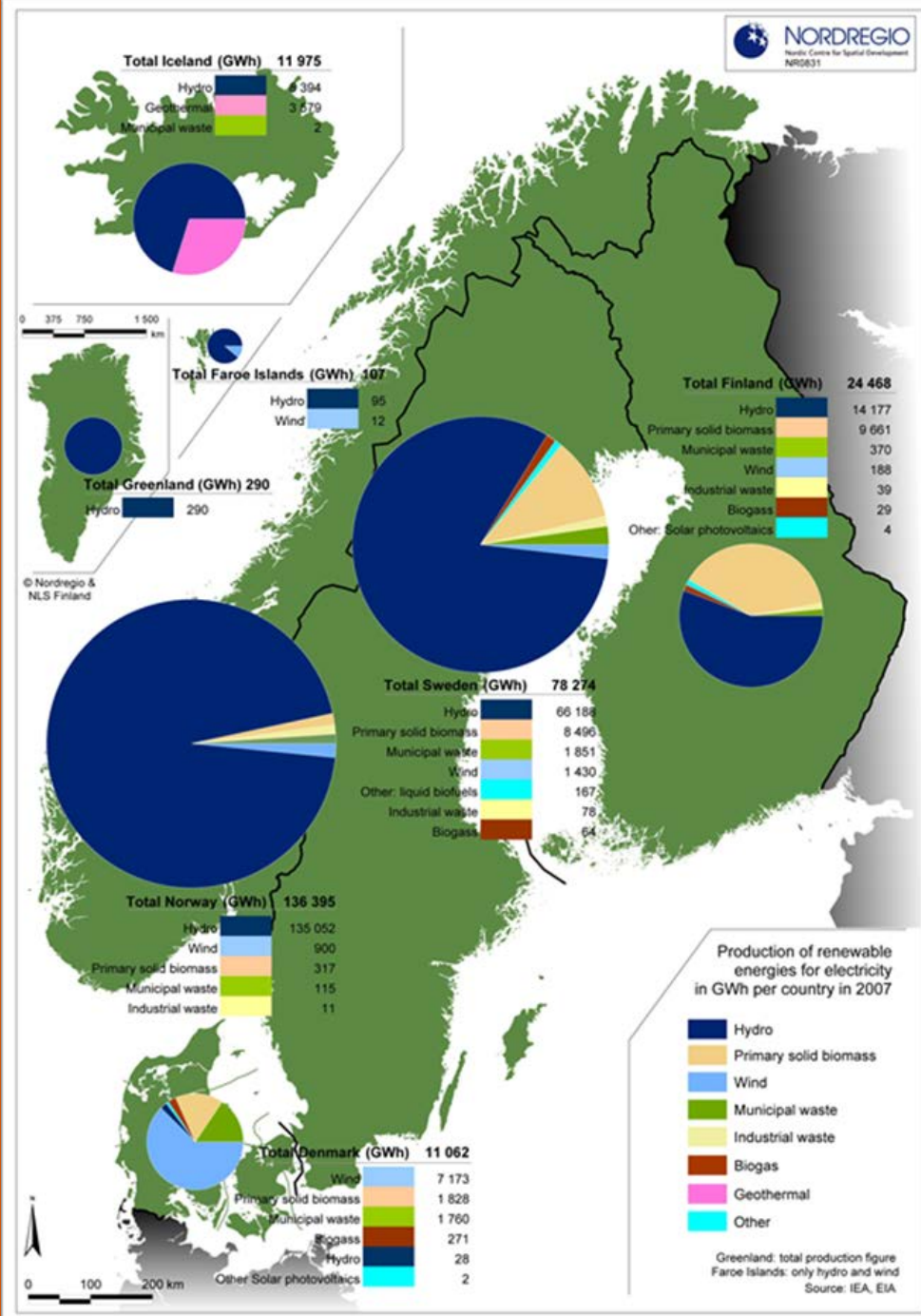
R&D Expenditure in 2006

GERD (Total intramural R&D expenditure)
as a share of GDP (PPS), in %

GERD/GDP
Barcelona target: > 3.0%
EU27 average: 1.9



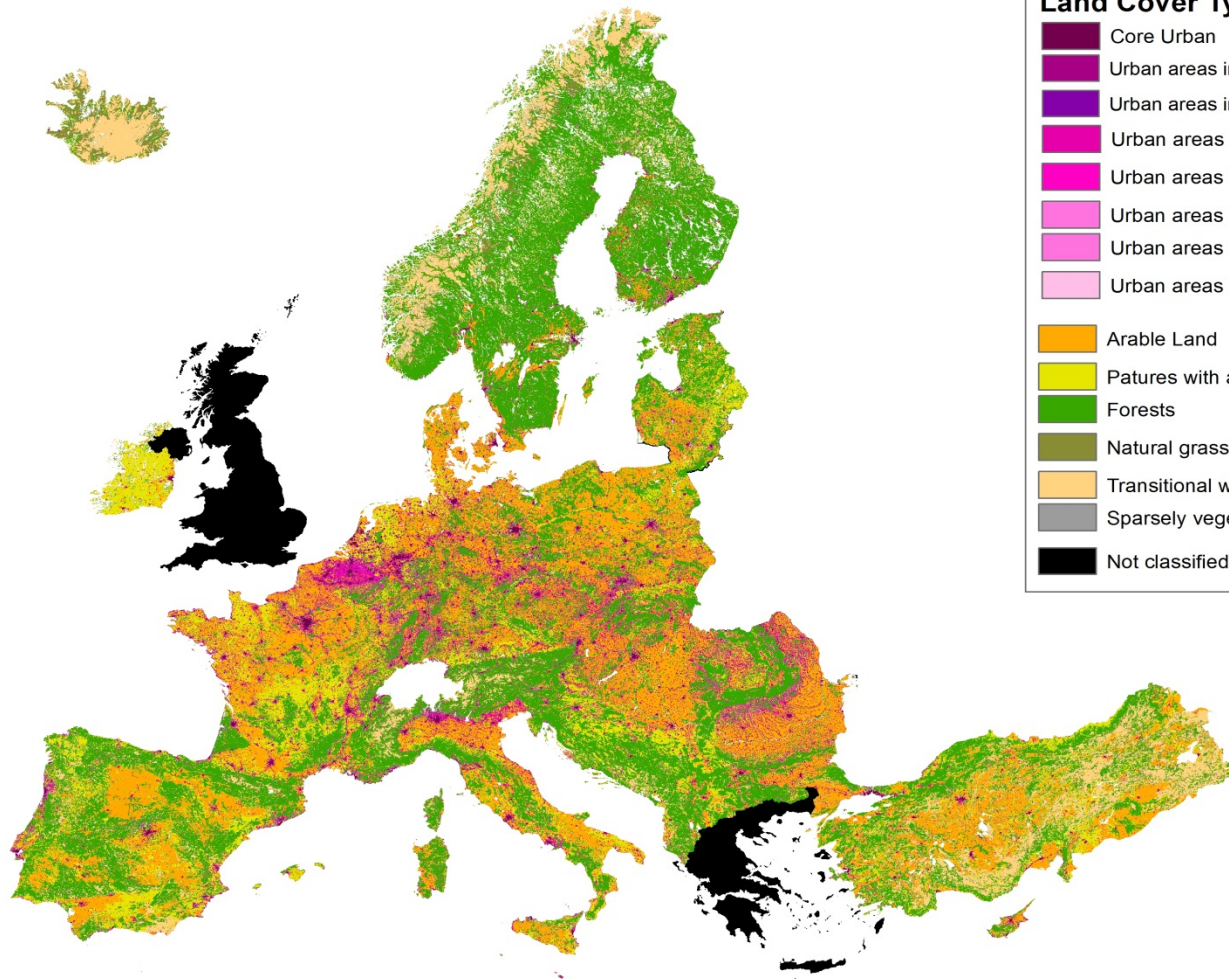
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4. Conditions



Comprehensive Land Cover Typology (Preliminary)



Land Cover Types

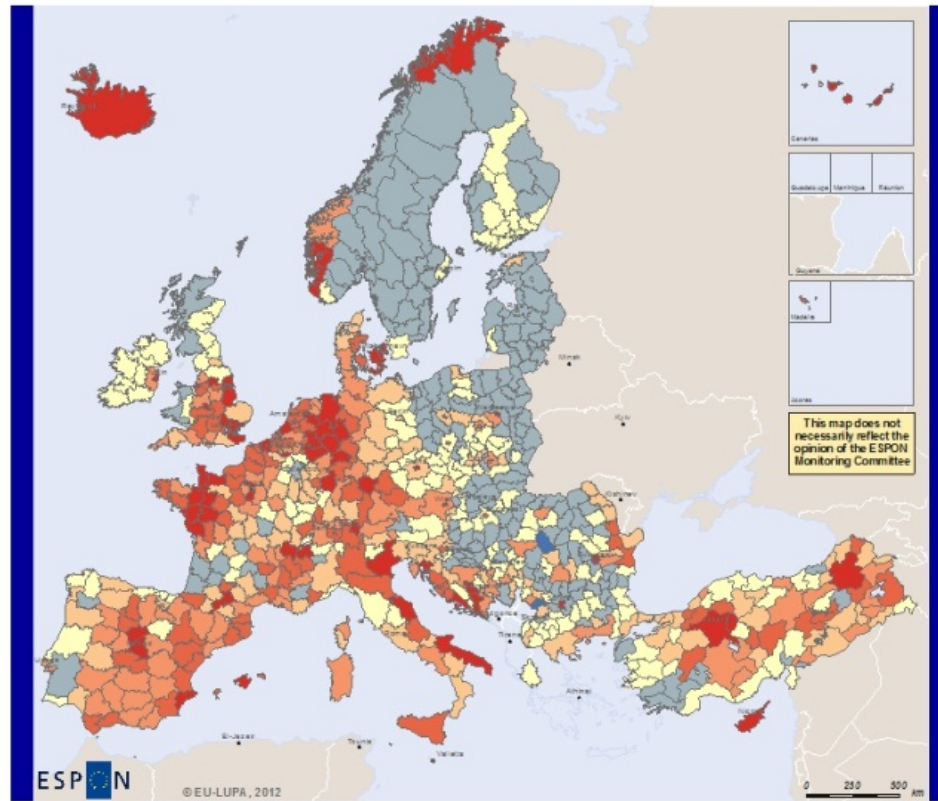
- Core Urban
- Urban areas in transitions (1)
- Urban areas in transitions (2)
- Urban areas in arable land
- Urban areas in pastures with annual/perm. crops
- Urban areas in forested areas
- Urban areas in transitional woodland areas
- Urban areas in marshes and coastal areas
- Arable Land
- Pastures with annual/perm. crops
- Forests
- Natural grassland
- Transitional woodland - shrub areas
- Sparsely vegetated areas
- Not classified

DRAFT



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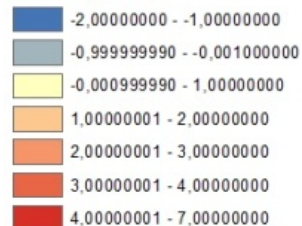
2000 - 2006 Land Cover Flow Intensity of Changes



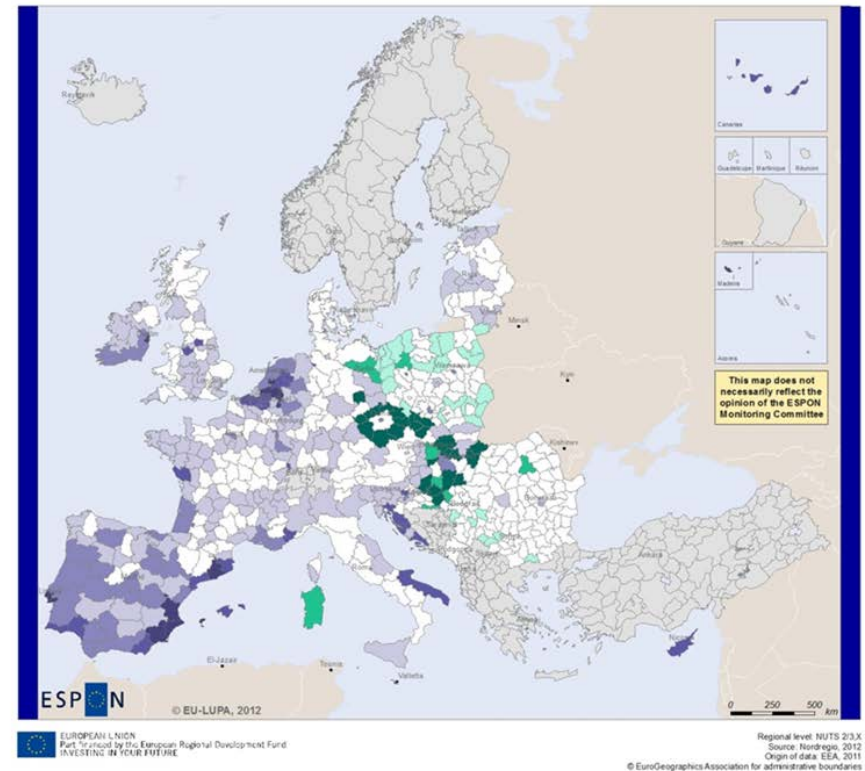
Intensity of Changes

Percent_Intensity_NUTSx

Intensity_2 / none



1990 - 2006 Land Change Hotspots



Matrix of land change hotspots

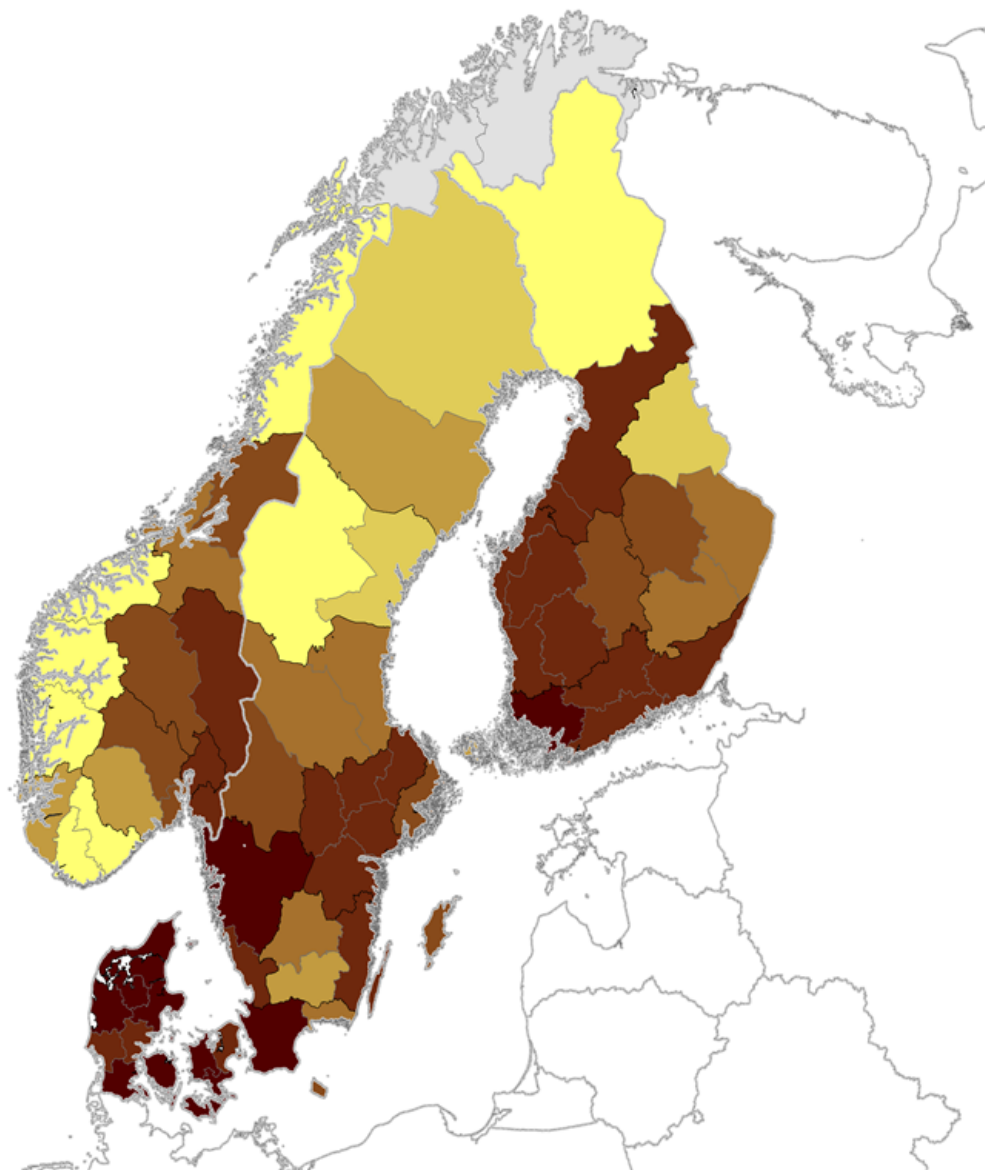
The x-axis shows the percentage of land that has undergone change between the given years, while the y-axis indicates the intensity of those changes. Therefore, regions in white represent regions with relatively stable land cover characteristics while increasingly darker shades of green or purple identify "hotspots" of change where high intensifications or extensifications are coupled with increasing levels of overall land change.

No Data

Intensity of Changes	Above 1,50	1,00 to 1,49	0,50 to 0,99	0 to 0,49	Below 0
Percent of Regional Change					
	Below 2,5%	2,5-5%	5-10%	10-20%	20% and above



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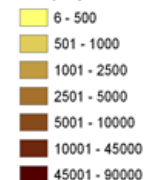
**Bioethanol average amount
based on Grain
statistics (2000-2006)**

**in Norway, Sweden, Finland
and Denmark**

Scenario I (Status quo)

**Bioethanol amount based on grain
with regional availability of 20 percent**

**Theoretical amount of bioethanol
tons per year and NUTS level 3**



NUTS level 3 without statistical data

Political Map

NUTS level 0

NUTS level 2

Map bases Europe NUTS Demographics
© ESRI® Data & Maps 2006

Calculation bases

Agricultural statistics:

- EUROSTAT data 2000 - 2006

- National statistical data 2000 - 2006

- Total grain amount or sum of cereal amounts

- 20 percent of amount available

- Bioenergy content of grain



S. Brozio, M. Zeidler, I. Berndt
University of Applied Sciences Eberswalde
30.04.2008

Project: Bioenergy and regional development
in the Nordic countries



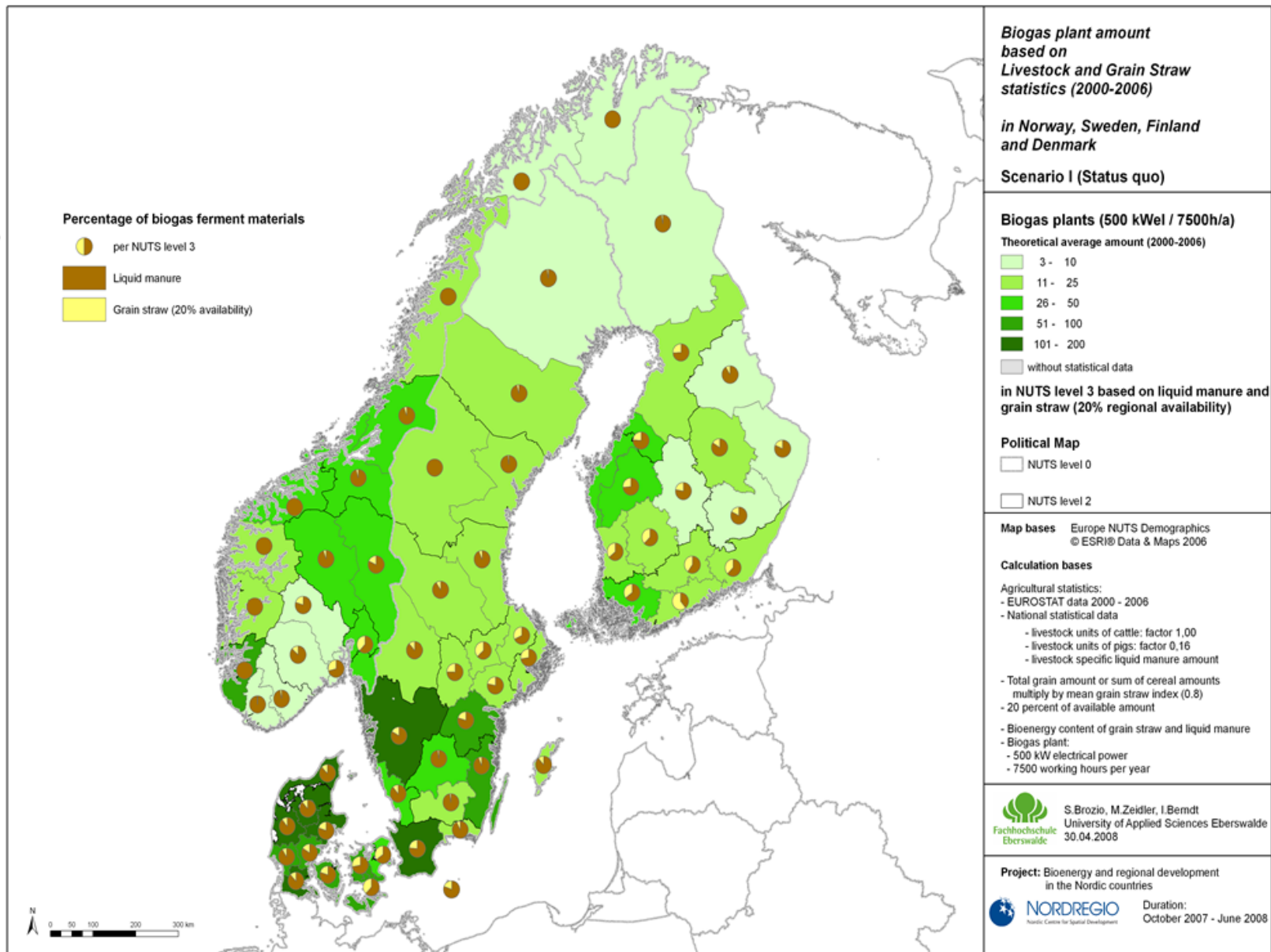
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Duration:
October 2007 - June 2008

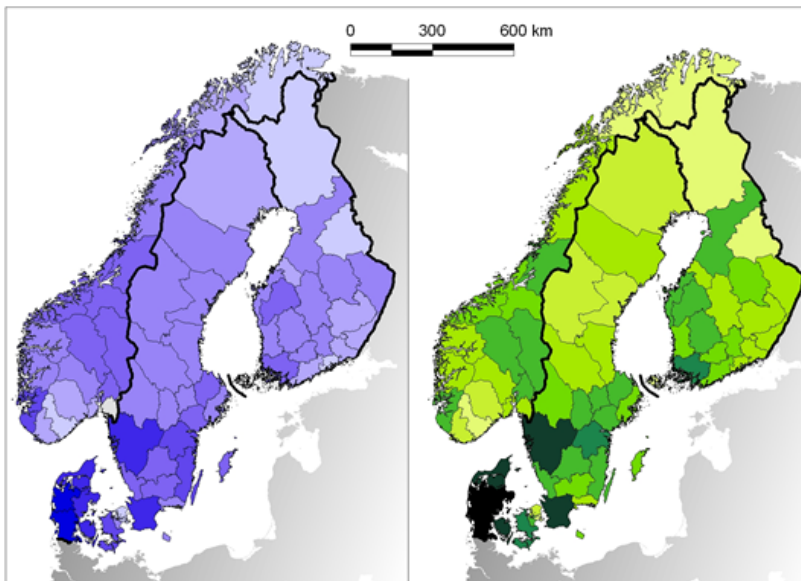
Bioethanol



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Biogas

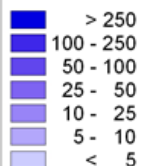


E: Biogas: based on 100% livestock manure, 20% grain straw, in 500 kW bio-gas plants with 7500 working hours/year*

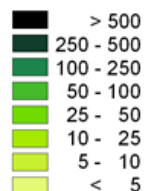
F: Total man-years for conversion of biomass to bioenergy

Bio-energy production in man-years

Biogas production (E)



Biomass to bio-energy (F)



Distribution of man-years between bioenergy sources (G)



- * Regional availability
- Grain = 20%
 - Grain straw = 20%
 - Rape = Average yield
 - Manure = 100%

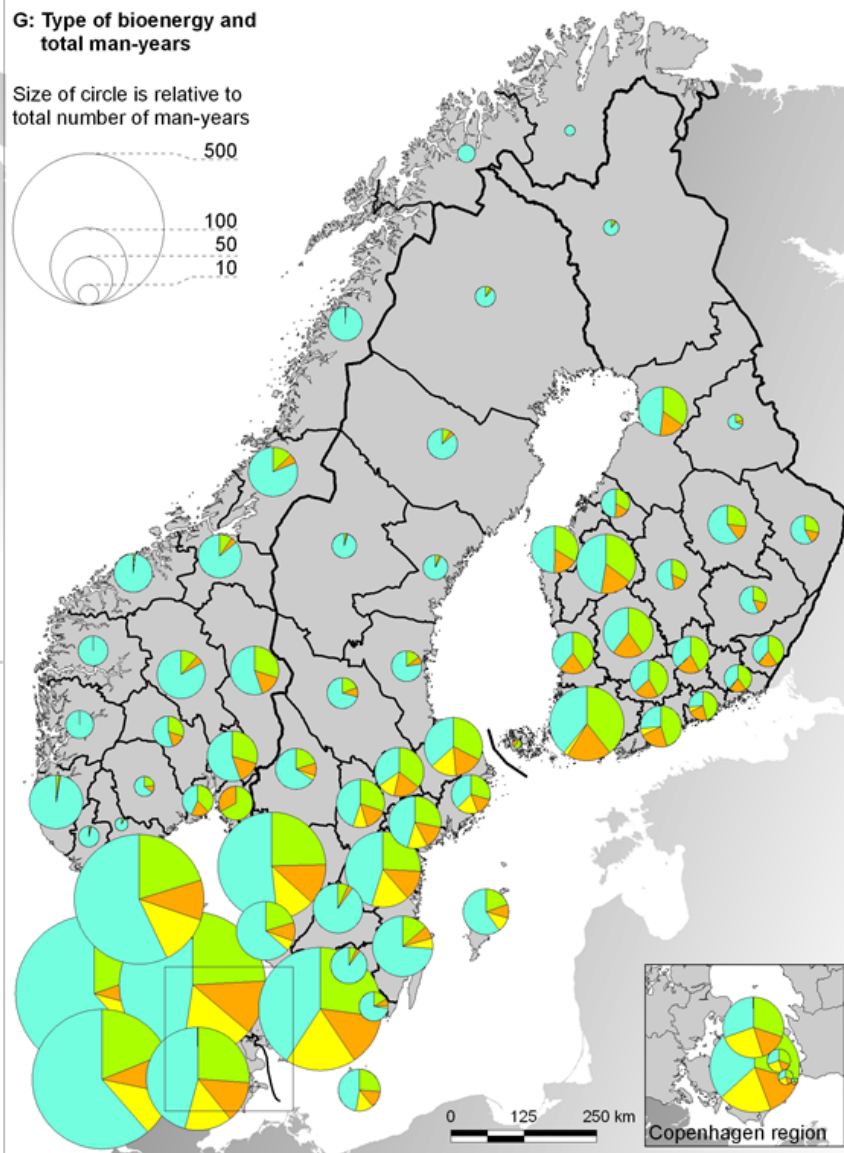
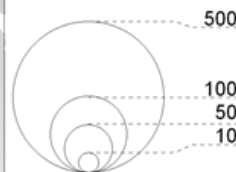
Figures include both direct and indirect labour activities

Data source: Nordregio, Faculty of Landscape Management and Nature Conservation at the University of Applied Sciences in Eberswalde, NSIs, TIKE

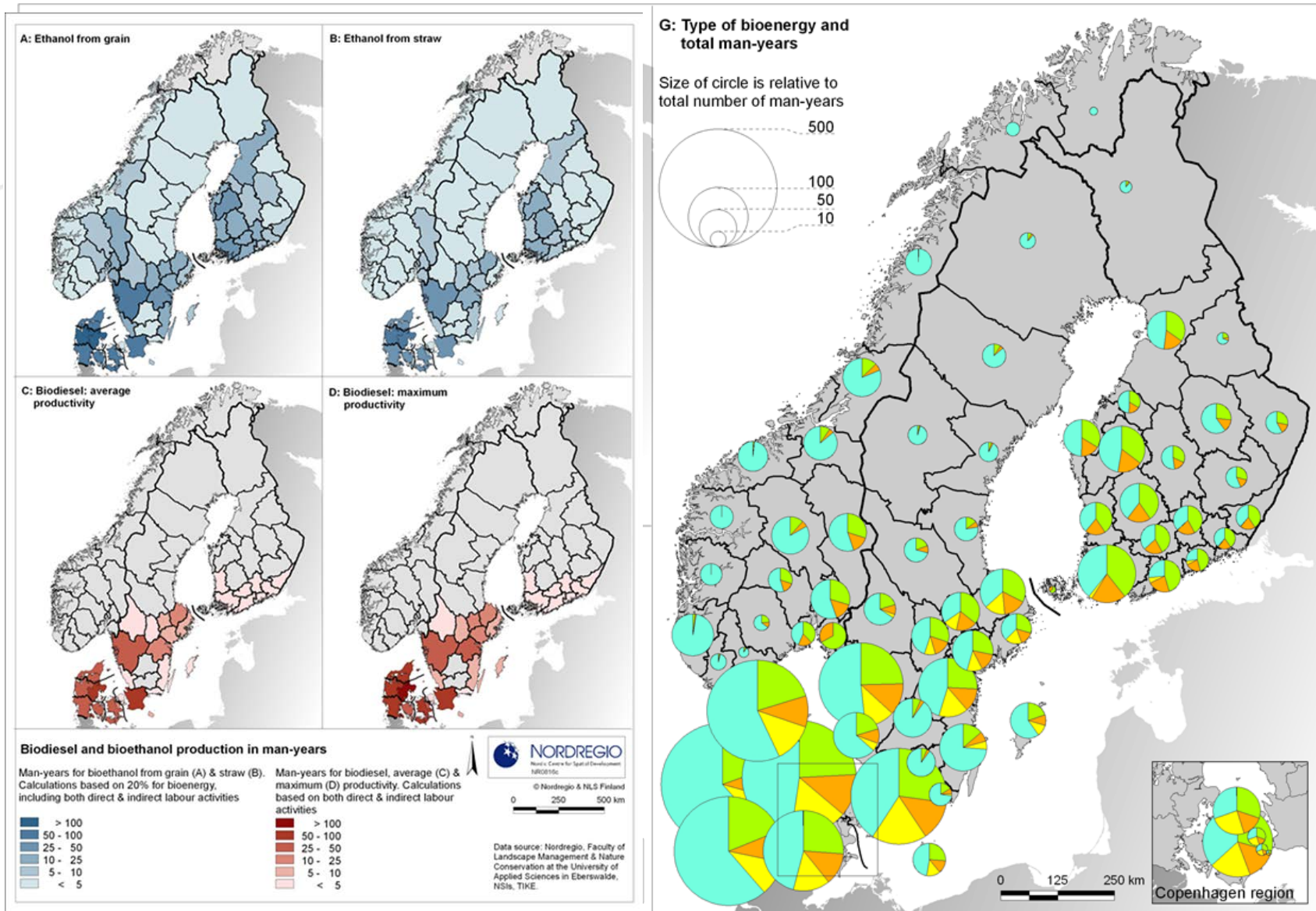


G: Type of bioenergy and total man-years

Size of circle is relative to total number of man-years



Labor market consequences



Labor market consequences

OECD: Renewable energy as basis for development in Rural areas

- Assumption:
 - A diversity in land base resources could be turned into a starting point for **a *NEW RURAL PARADIGM***



OECD: Renewable energy as basis for development in Rural areas

- The findings indicate that policy focused on the potential for renewable energy in the process of rural development should be cross-sector and place based. This implies identifying local conditions and opportunities, and integrating and linking the potential of renewable energy with local rural economies, as well as adopting inclusive modes of governance to ensure social acceptance.



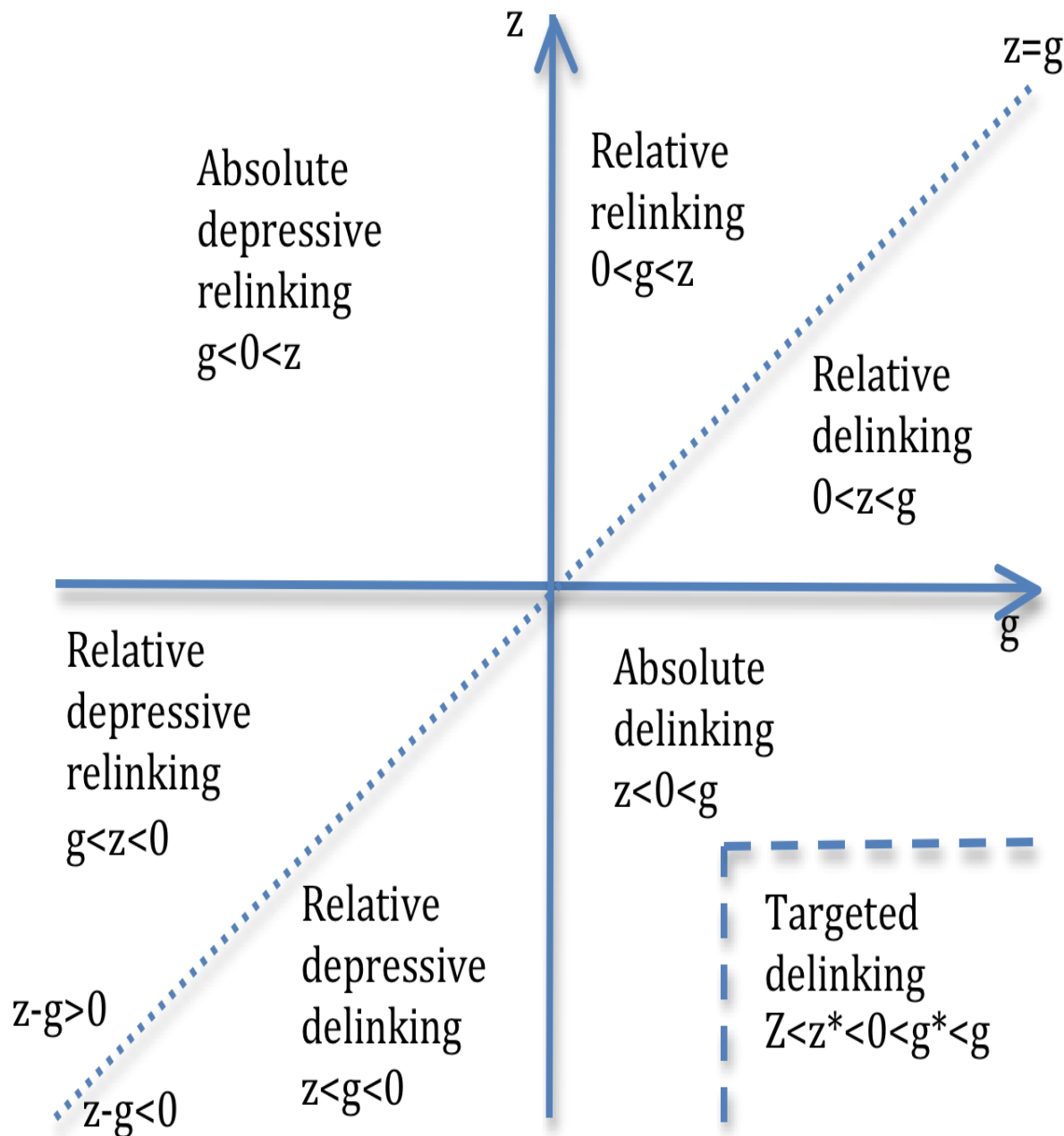
OECD: Renewable energy as basis for development in Rural areas

- The results also indicate that while renewable energy has the ability to create new jobs, ***we should not exaggerate its potential.***
- Overall, renewable energy is potentially useful for all rural and low-population-density regions, but mainly in shifting a community facing structural economic downturn ***to a new lower economic equilibrium.***

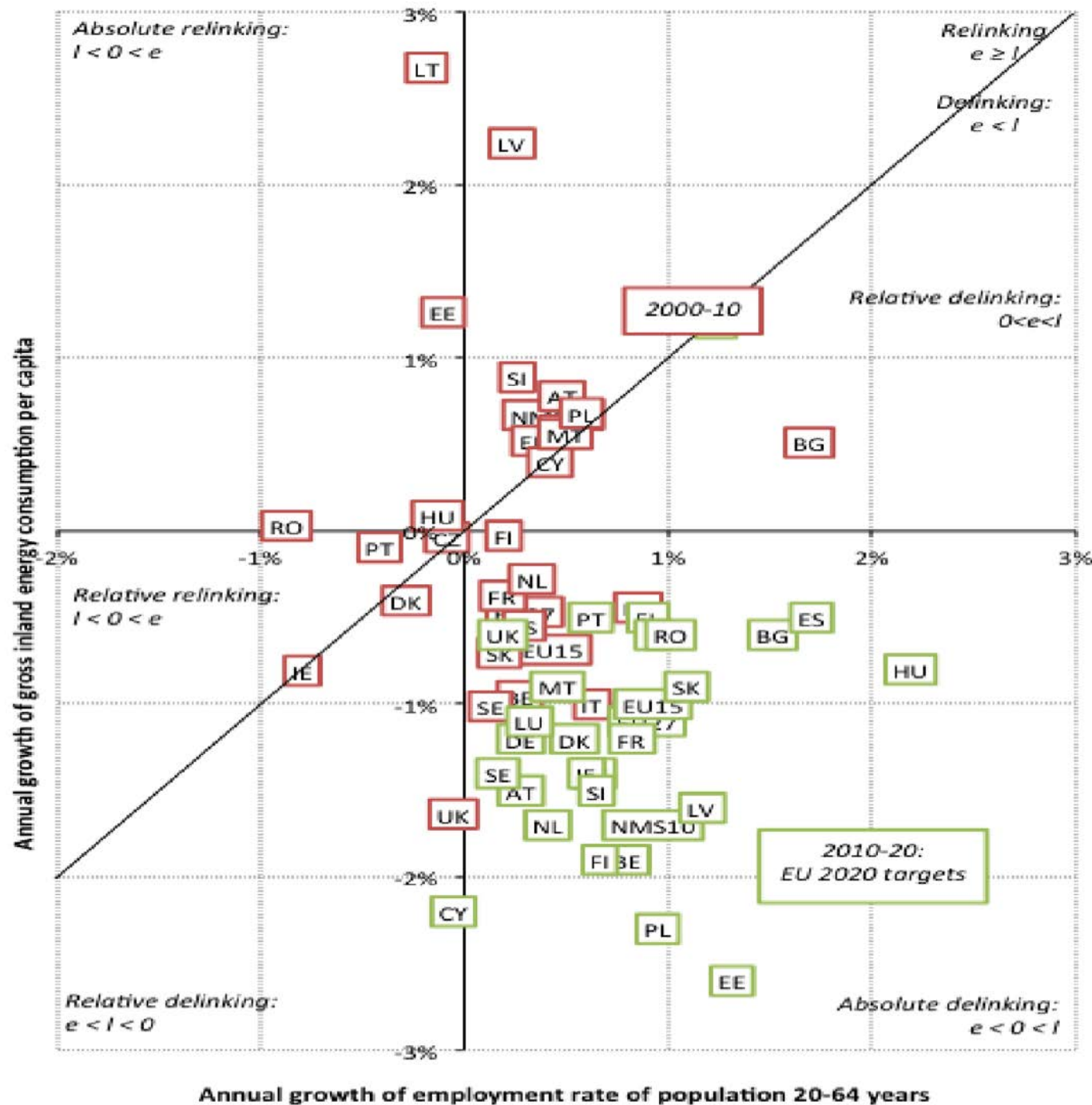


5. Goals



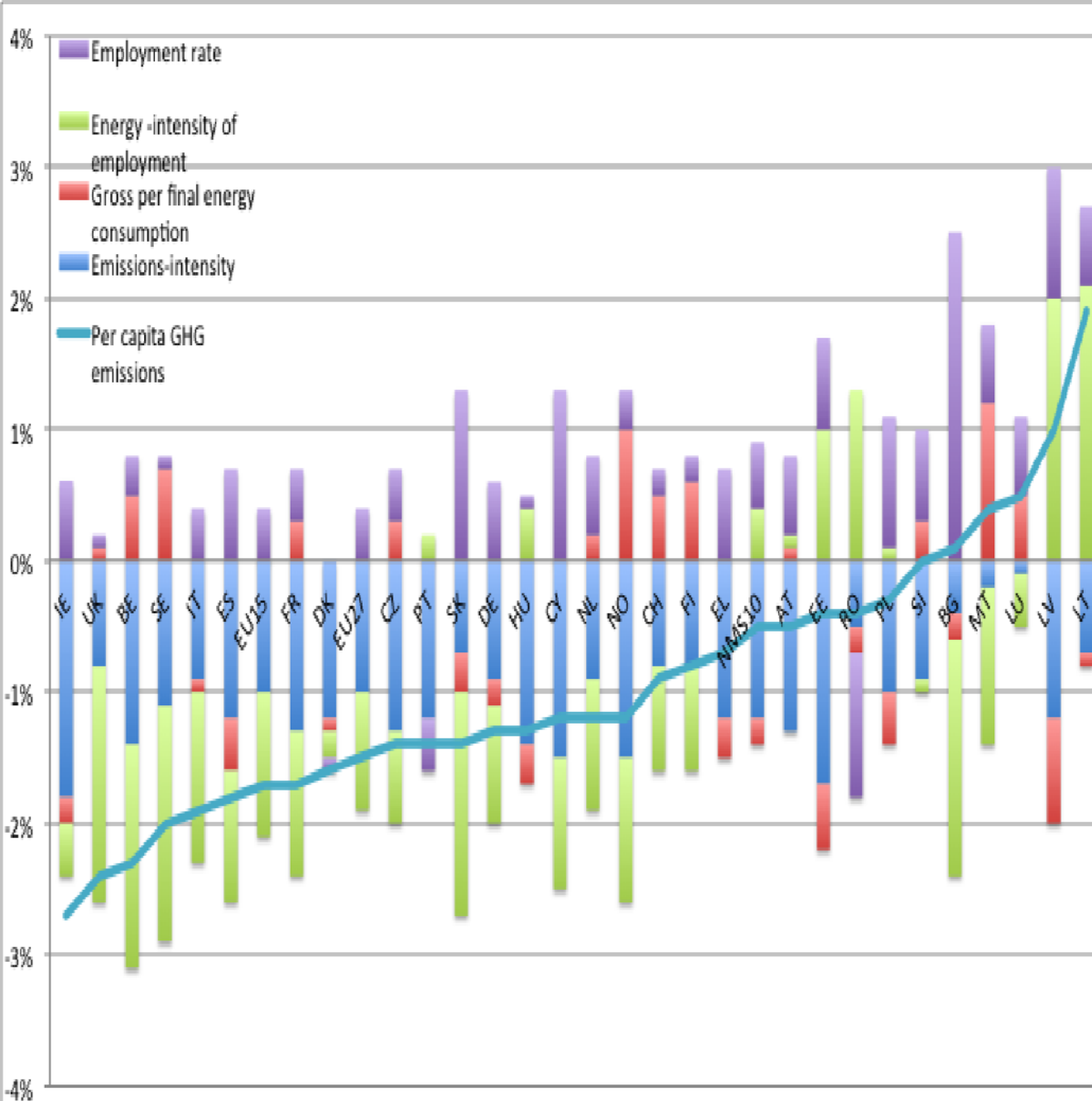


Delinking energy consumption from employment growth in Europe. By delinking classes and LE intensity growth (= average growth rate in employment - average growth rate in final energy consumption), 2008-10.

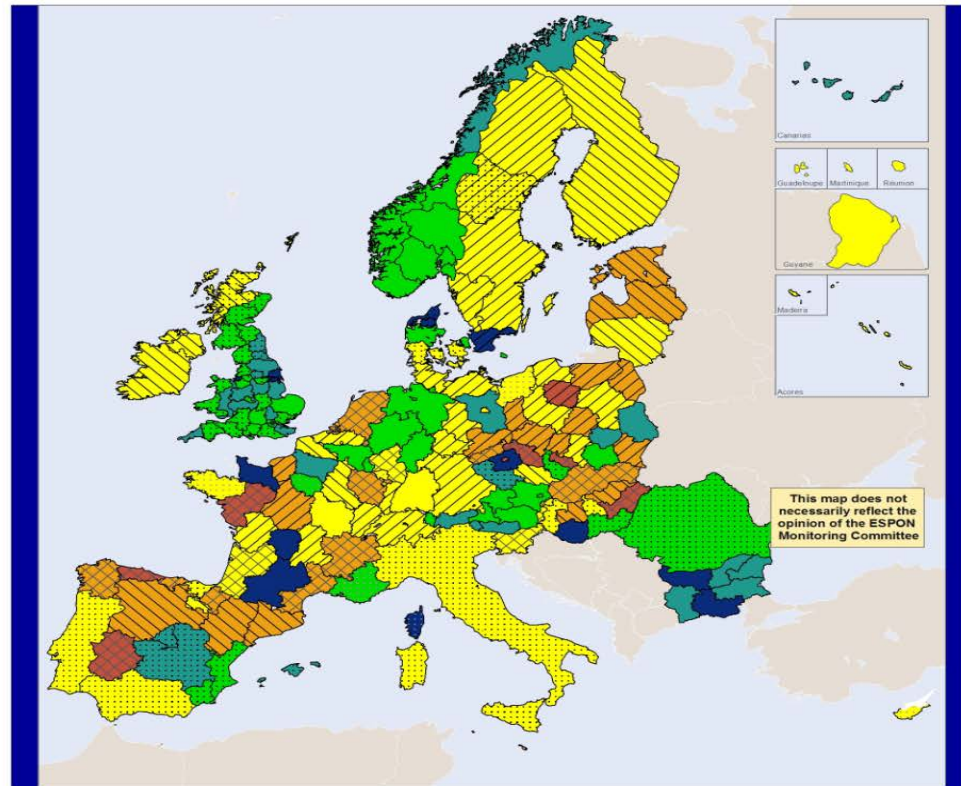


Delinking
final energy
consumption
from
employment
growth in
2000-10 and
the implicit
EU 2020
delinking
targets





Factors
affecting the
growth of per
capita GHG
emissions
2000-09 in
European
countries.



ESPON

© TEAM XXX, Project, Year

EUROPEAN UNION
Part-financed by the European Regional Development Fund
INVESTING IN YOUR FUTURE

0 250 500 km

Regional level: NUTS xx
Source: xxx, year
Origin of data: xxx, year

© EuroGeographics Association for administrative boundaries

Employment growth and reduced energy use 2008-10

Delink

8-10CL

	0	Depressive Absolute Relinking
	10	Relative Relinking
	20	Depressive Relative Relinking
	30	Depressive Relative Delinking
	40	Relative Delinking
	100	Absolute Delinking

LE intensity

8-10L-E

	-14% - -7%
	-6% - -2%
	-1% - 1%
	2% - 4%
	5% - 7%
	8% - 16%

Delinking energy consumption from employment growth in Europe.

By delinking classes and LE intensity growth (= average growth rate in employment - average growth rate in final energy consumption), 2008-10.



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6. Discussions

