



NORDREGIO
Nordic Centre for Spatial Development

Mapping and geo-data activities

October 14th 2016
Stockholm

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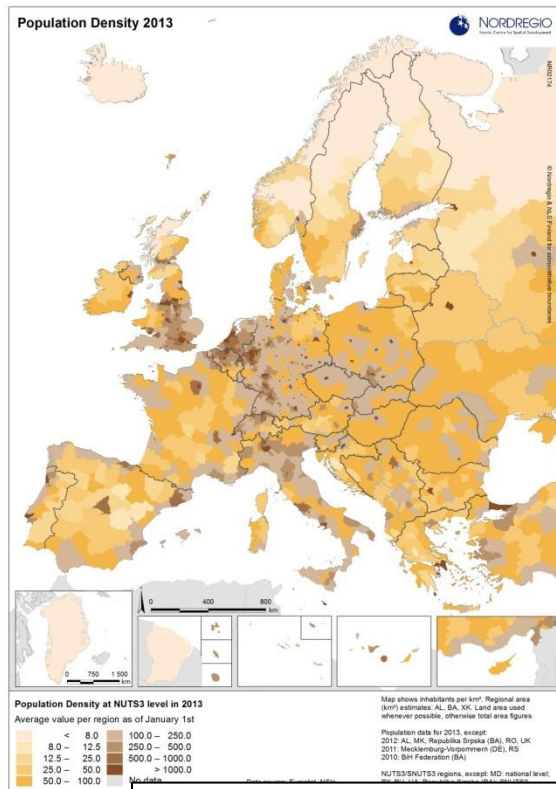


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Nordic Council of Ministers

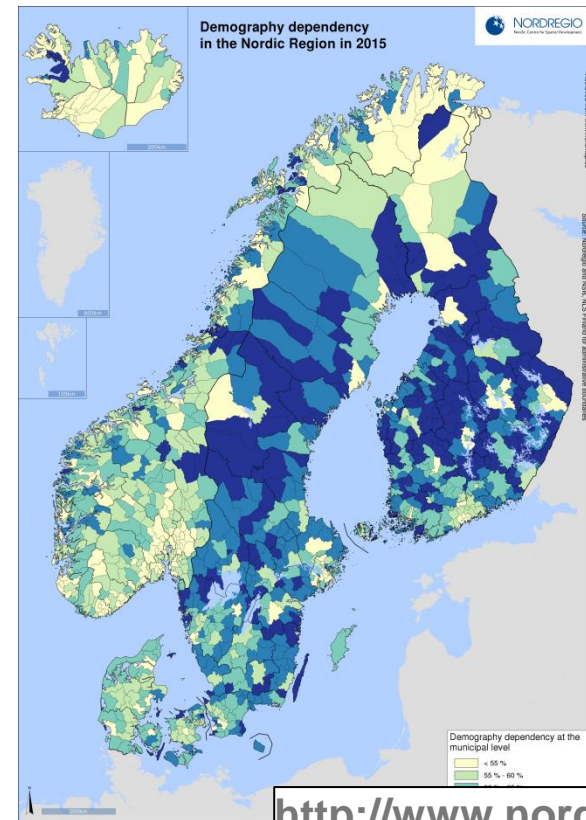
Mapping production

1. Static/paper based maps: map gallery, reports

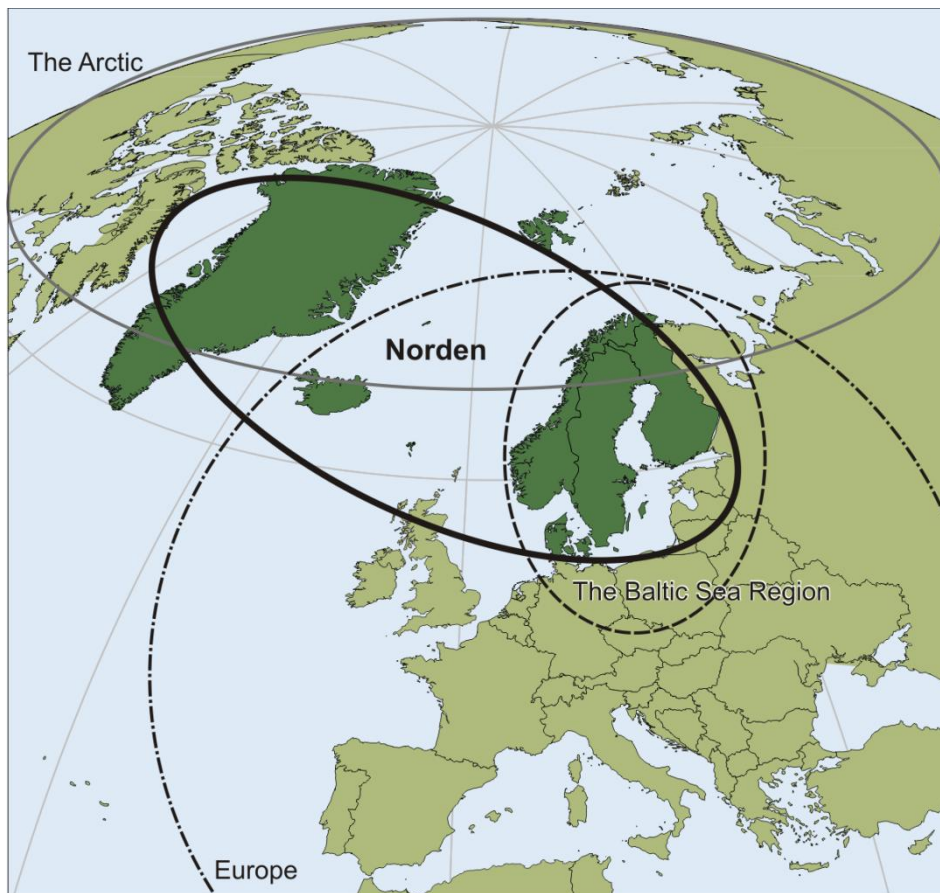


<http://www.nordregio.se/en/Maps>

2. NordMap: interactive map tool



<http://www.nordmap.se>



Geographical foci of Nordregio

Which geographical scales?

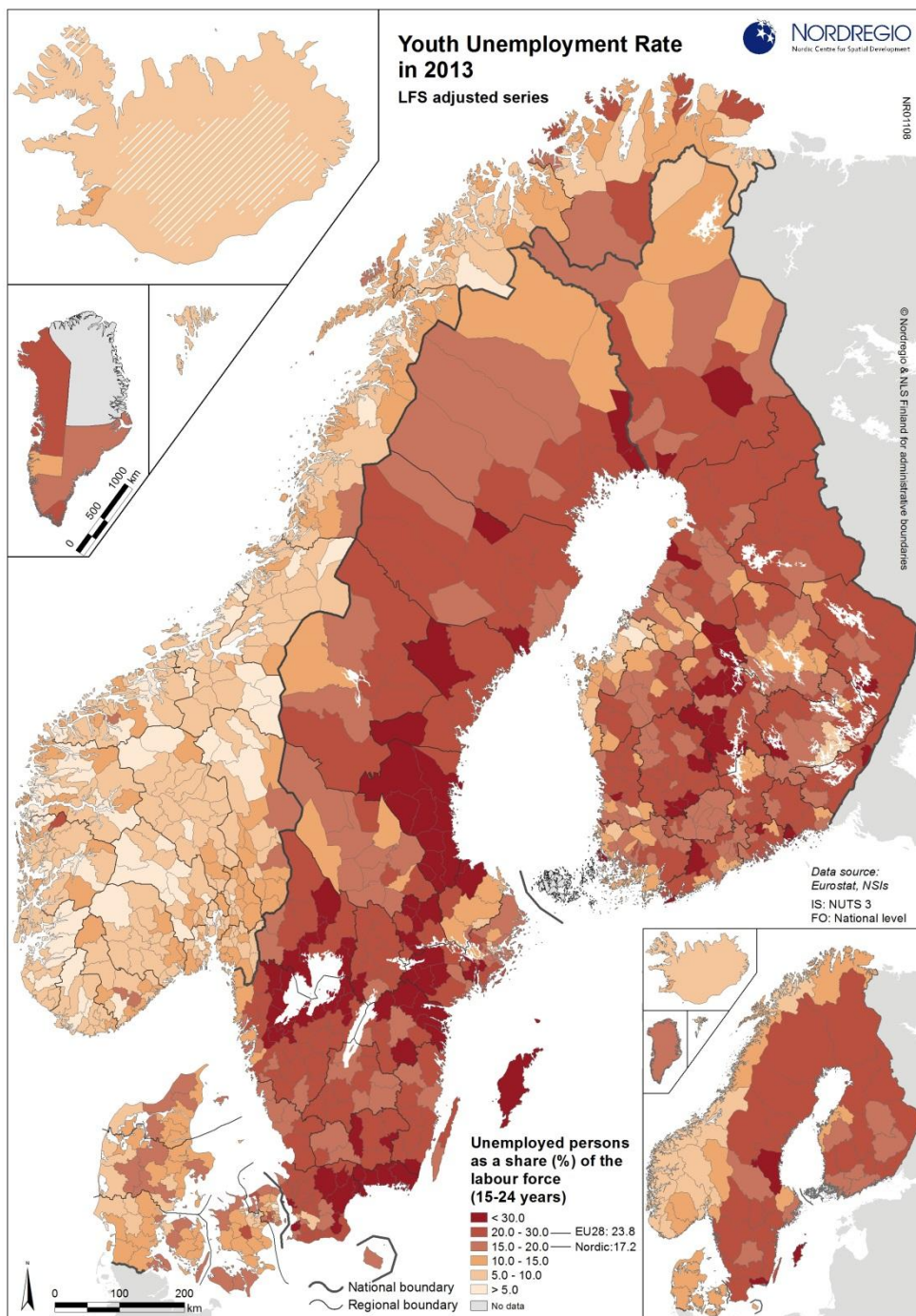
- Nordic region
- Baltic Sea region
- Europe
- The Arctic

Other:

- Case study areas
- City maps
- North Atlantic
- North Calotte and Northern Sparsely Populated Areas
- Others

➤ Regional development in focus:

- **The *regional* or *local* level**
- **Harmonised cross-border data**



The Nordic Region

■ Layout:

- 5 Nordic countries
- 3 autonomous regions

■ Regional/local level:

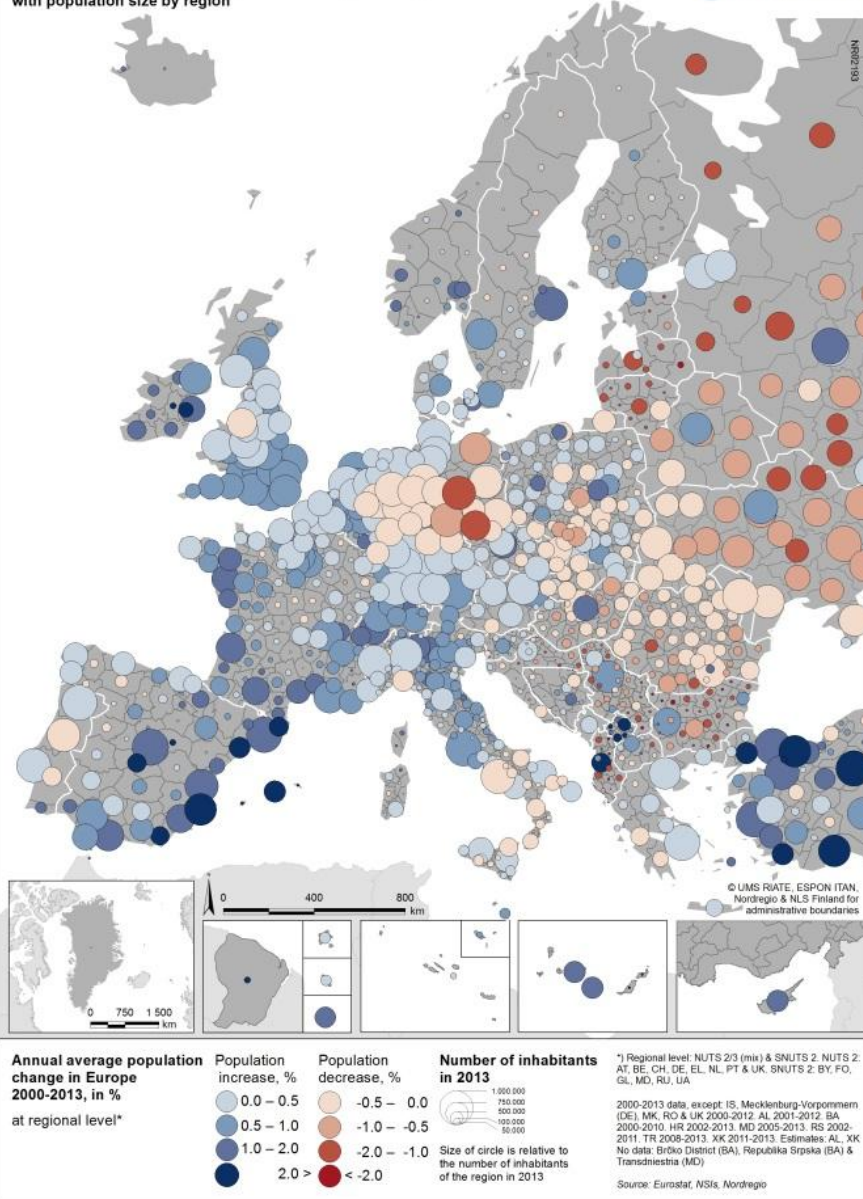
- Municipalities
- Regions (small map)

■ Boundaries updated annually

■ Harmonised data:

- Comparable across countries
- EU (Eurostat) definition

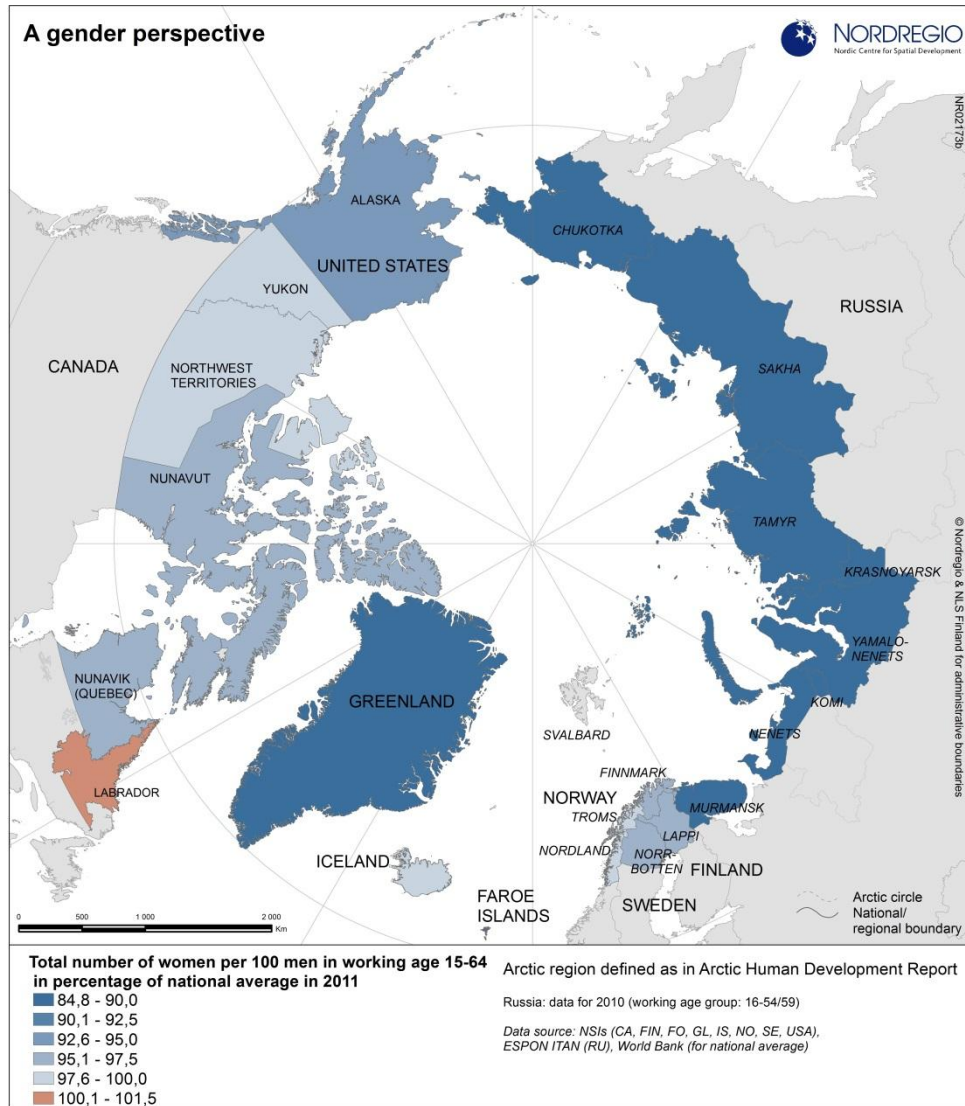
Total population change in European regions 2000-2013
with population size by region



Europe

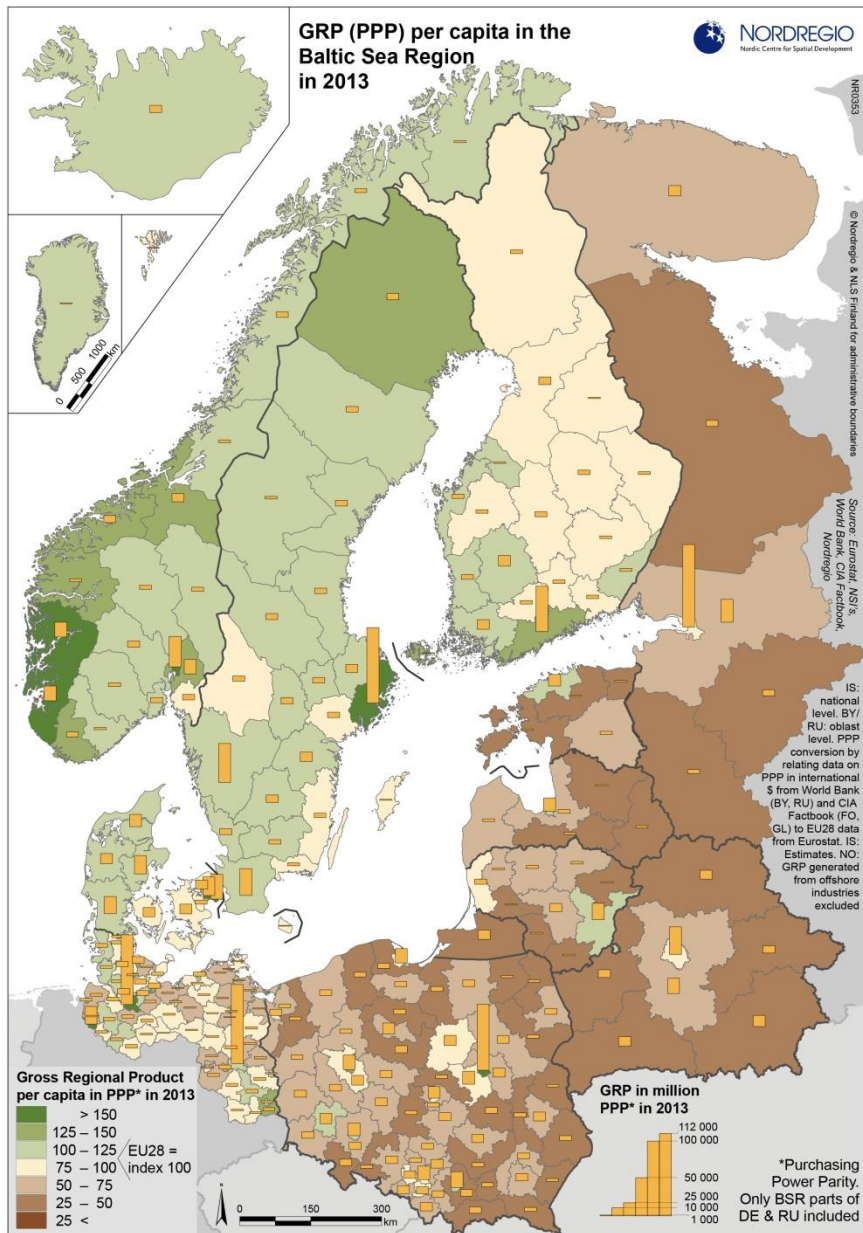
- Layout:
 - All countries in Europe
 - Outlying regions (ES, FR, PT) and Greenland
- Regional levels (according to EU standards):
 - "NUTS 3"
 - "NUTS 2"
- Boundaries updated when new "NUTS" edition is available (~every 1-4 years)

A gender perspective



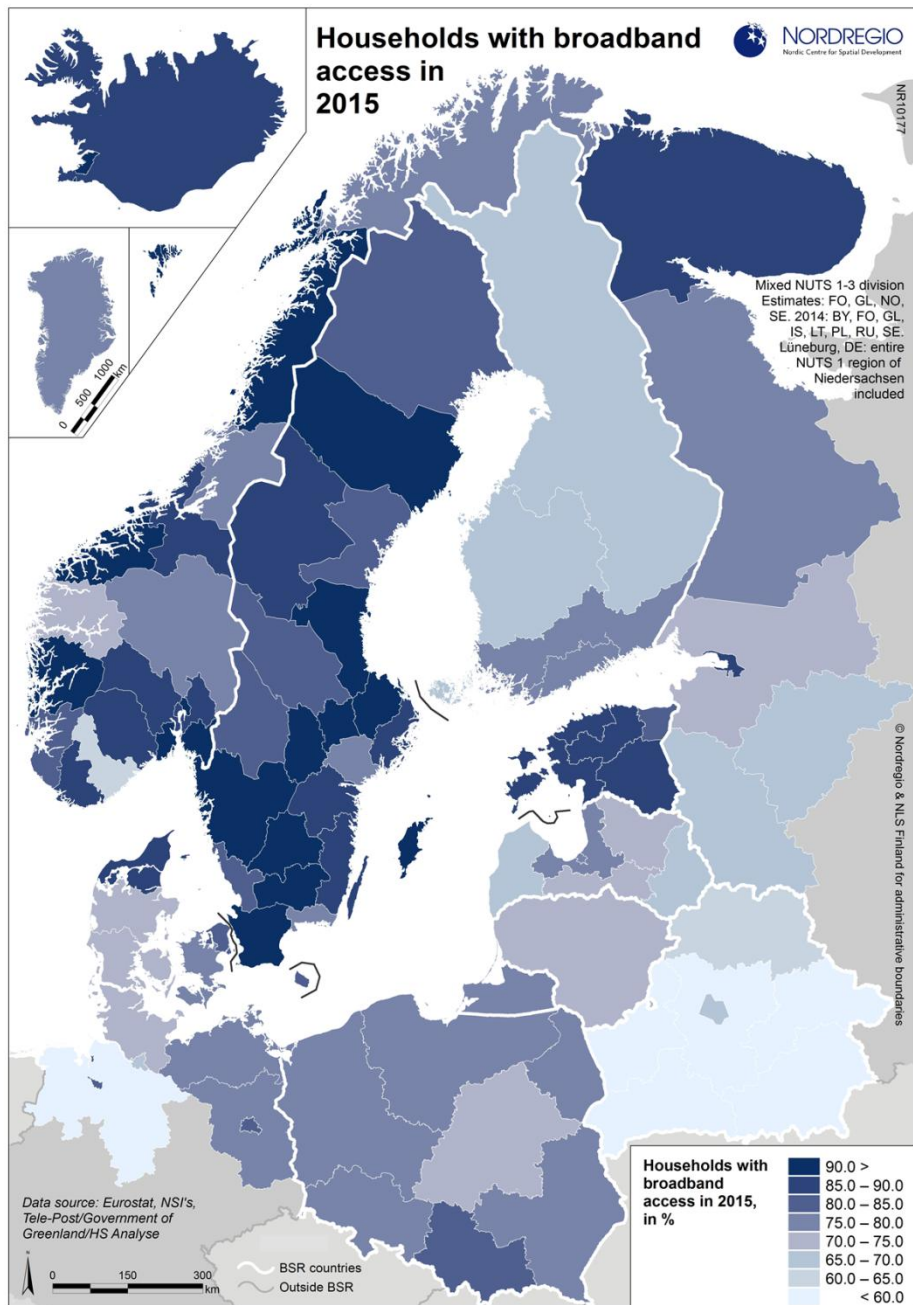
The Arctic

- Circumpolar map
- Includes all Arctic sub-regions in:
 - Finland
 - Sweden
 - Norway
 - Faroe Islands
 - Iceland
 - Greenland
 - Canada
 - USA
 - Russia



The Baltic Sea Region

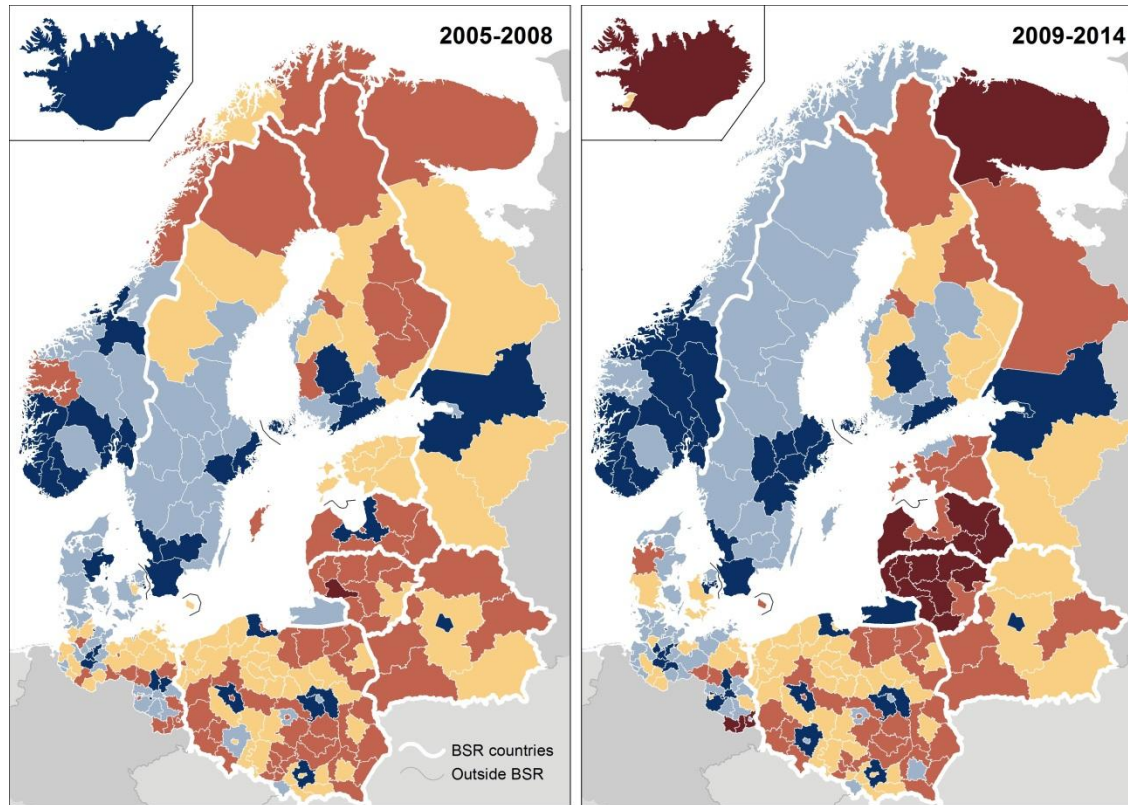
- Expanded Nordic map
- Includes all Baltic Sea Region countries and all Nordic countries
- Includes N.W. Russia and Belarus
- **Gross Regional Product (Purchasing Power Parity) per capita in 2013**
- East-West divide still persists
- ... except for the capital areas, e.g. Tallin above the EU average



The Baltic Sea Region, cont.

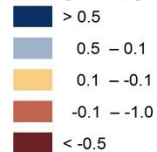
- Share of households with broadband access in 2015 at regional level
- Highest broadband penetration rates are in Iceland, followed by Sweden and Estonia
- In many countries, capital regions and large agglomerations enjoy the highest broadband access (>80%)
- Most BSR countries will reach coverage close to 100 percent by 2022

The Baltic Sea Region, cont.

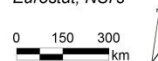


Net migration

Average change (%)



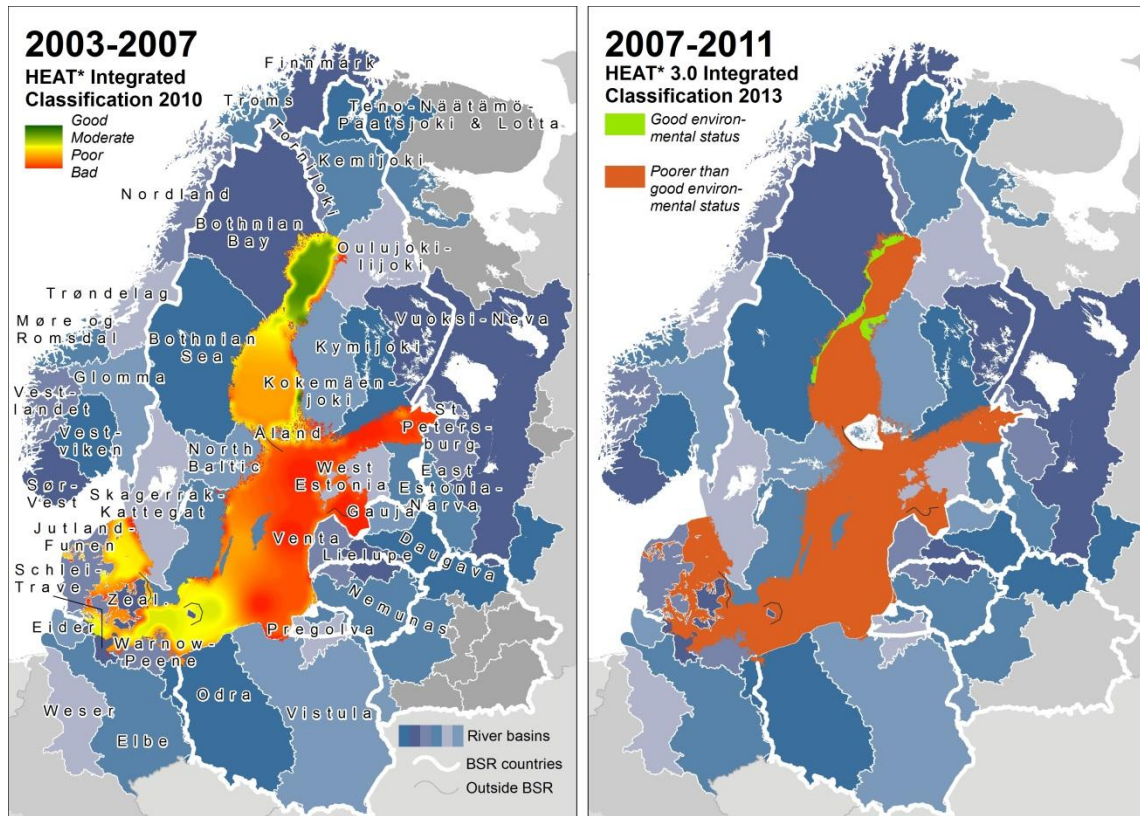
2005-2008 map:
DK: 2007-2008
Data source:
Eurostat, NSI's



NR022320 © Nordregio & NLS Finland
for administrative boundaries

- **Net migration 2005-2008 vs. 2009-2014**
- North-eastern Germany and a number of peripheral regions in Norway, Sweden and Finland has shifted to modestly positive growth
- In Poland, the number of urban areas that are growing has increased
- Out-migration is increasing in all regions in Latvia and Lithuania
- The previously negative trend in Tallinn has reversed

The Baltic Sea Region, cont.



Eutrophication in the Baltic Sea with river basins



NR02233c © Nordregio & NLS Finland
for administrative boundaries



Data source: *HEAT: HELCOM Eutrophication Assessment Tool. A total of 189 stations, sites and basins have been classified as either affected by eutrophication (moderate, poor or bad status), or not affected by eutrophication (high or good status). © HELCOM. **River Basin Districts: EU & NO: European Commission, DG JRC (WISE system, November 2006). BY & RU: Joint Research Centre (Catchment and Modelling (CCM)). © European Commission 2006, © European Commission - JRC 2003. Based on Nordregio map No. 0824.

- Eutrophication of the Baltic Sea in 2003-2007 vs. 2007-2011
- In 2003-2007, the Gulf of Bothnia and the westernmost parts of the Baltic Sea experienced moderate or even good levels of eutrophication
- Also in 2003-2007, the Gulf of Finland and the Central parts of the BSR experienced poor levels
- In 2007-2011, almost entire BSR experienced poor eutrophication levels, with the exception of coastal areas in the Gulf of Bothnia

Nordic - Baltic Demographic Vulnerabilities



Thresholds for vulnerabilities

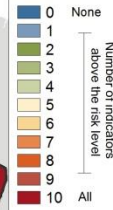
Indicator is understood to be above the risk level, if:

Crude birth rate < 11.1%
Crude death rate > 13.9%
Net migration rate < 0.0%

Share of population in age group:
0-14 years is below 17.81%
15-24 years is below 12.63%
25-54 years is below 39.97%
55-64 years is above 12.34%
65+ years is above 19.00%

Balance, females & males:
Less females than males
Less than 96.2 females per 100 males in age group 15-64 years

Total number of vulnerabilities



Data year 2015

Adm. level:

DK: FI, NO

SE: municipality

EE: Vald/linn

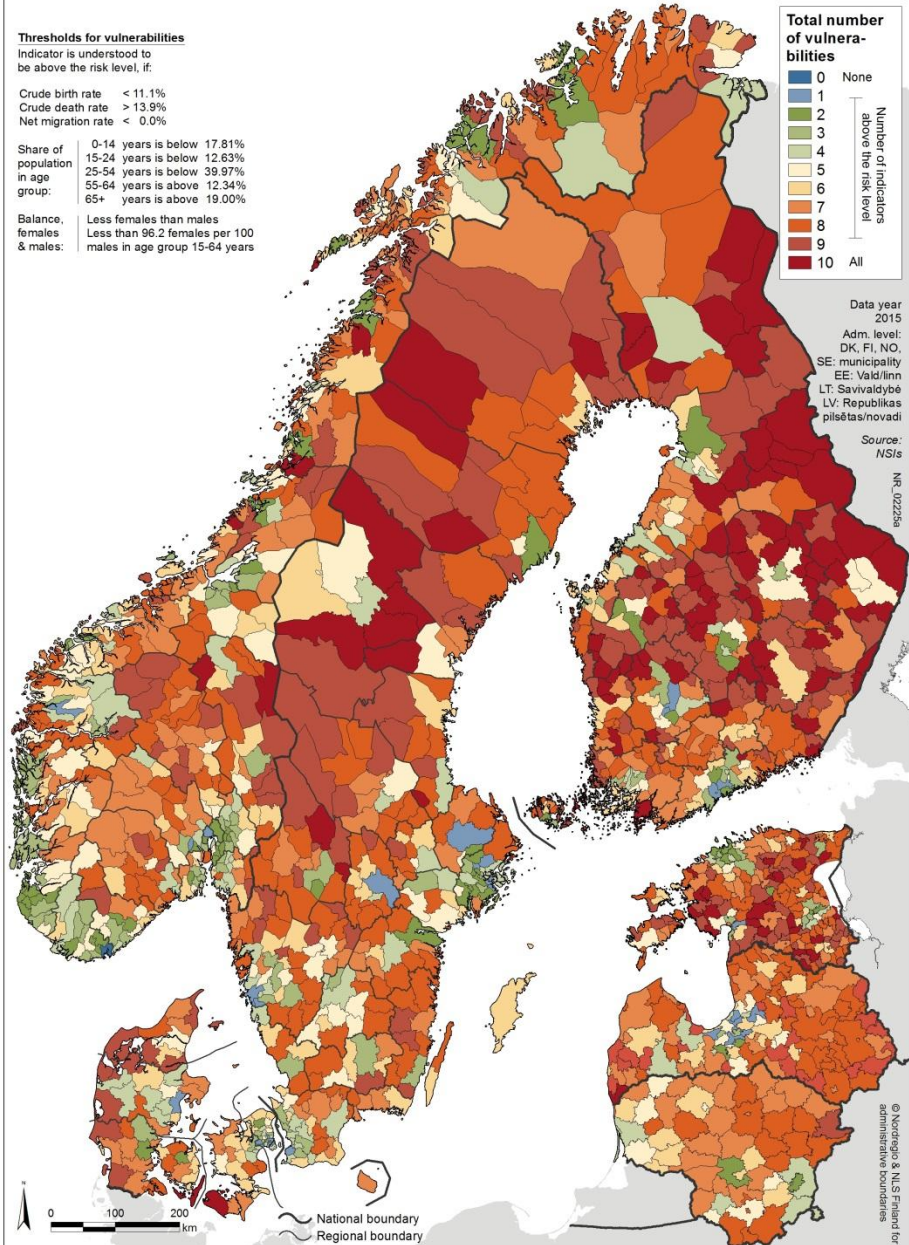
LT: Savivaldybė

LV: Republikas pilsētas/novadi

Source: NSIs

NR-0225a

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The Nordic and Baltic States

- Demographic vulnerabilities
- An index combining 10 demographic vulnerabilities
- For each component, there is a threshold (i.e., a limit) of vulnerability
- The thresholds have been chosen to identify whether or not the component can be considered at risk
- More vulnerabilities within a municipality or a region indicates a higher level of risk (orange-red colours)



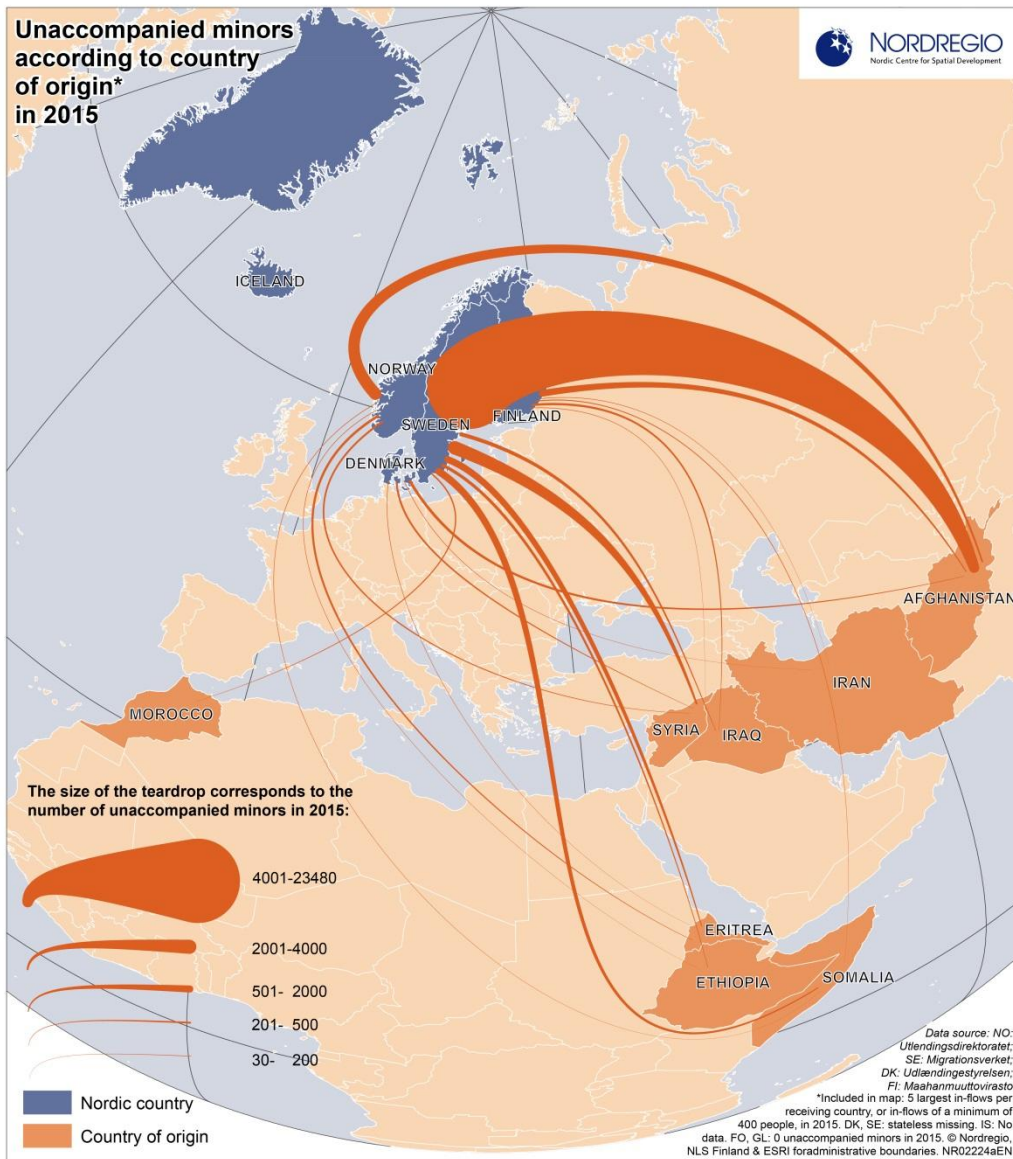
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Case study area maps

- Upon special request or through tendering:
 - Regional authorities
 - Ministries in the Nordic countries
 - Cross-border cooperations, e.g. Interreg programmes in the Baltic Sea Region
 - EU Commission
 - Research projects





Commission projects

- Upon special request or through tendering
- Following the client's needs:
 - Layout; fonts, colours
 - Geographic coverage (the client's own region, etc.)

MAPS

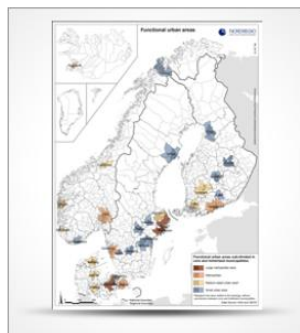
Find all of Nordregio's published maps

Use the filter below to narrow your search, geographically or thematically.

Free text search

Show filter

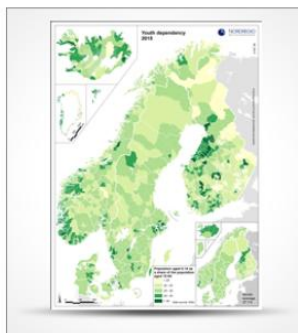
Your search resulted in 463 hits for all



2016

Functional urban areas

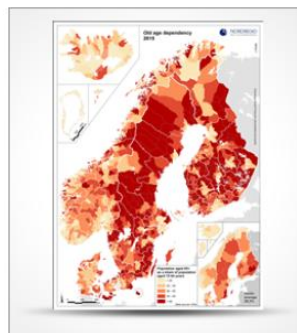
Functional urban areas sub-divided by core and hinterland municipalities



2016

Youth dependency 2015

Population aged 0-14 as share of the population aged 15-64



2016

Old age dependency 2015

Population aged over 65 as share of population aged 15-64

The Map Gallery

- Almost 500 maps
- Search for maps within themes such as:
 - Population and demography (199)
 - Labour market and social conditions (96)
 - Economy, trade and industry (47)
 - Science and technology (37)
 - Environment and energy (43)
 - Transport (13)
 - Cooperation and eligible areas (27)
 - Urban and regional divisions (40)
- <http://www.nordregio.se/en/Maps>



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NordMap

A new web-mapping tool for the Nordic Region

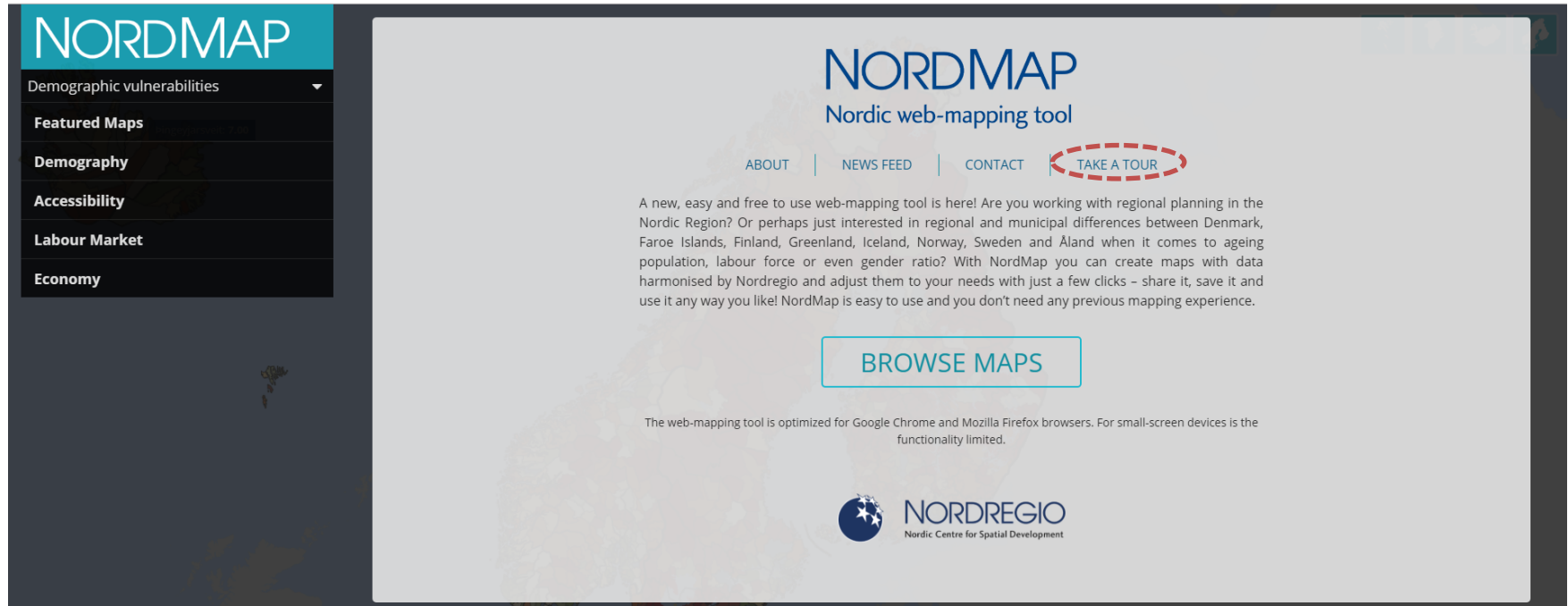
Shinan Wang, Junior Cartographer / GIS Analyst
ESTGIS annual conference
Stockholm, October 14th, 2016



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A new mapping solution: a web-mapping tool

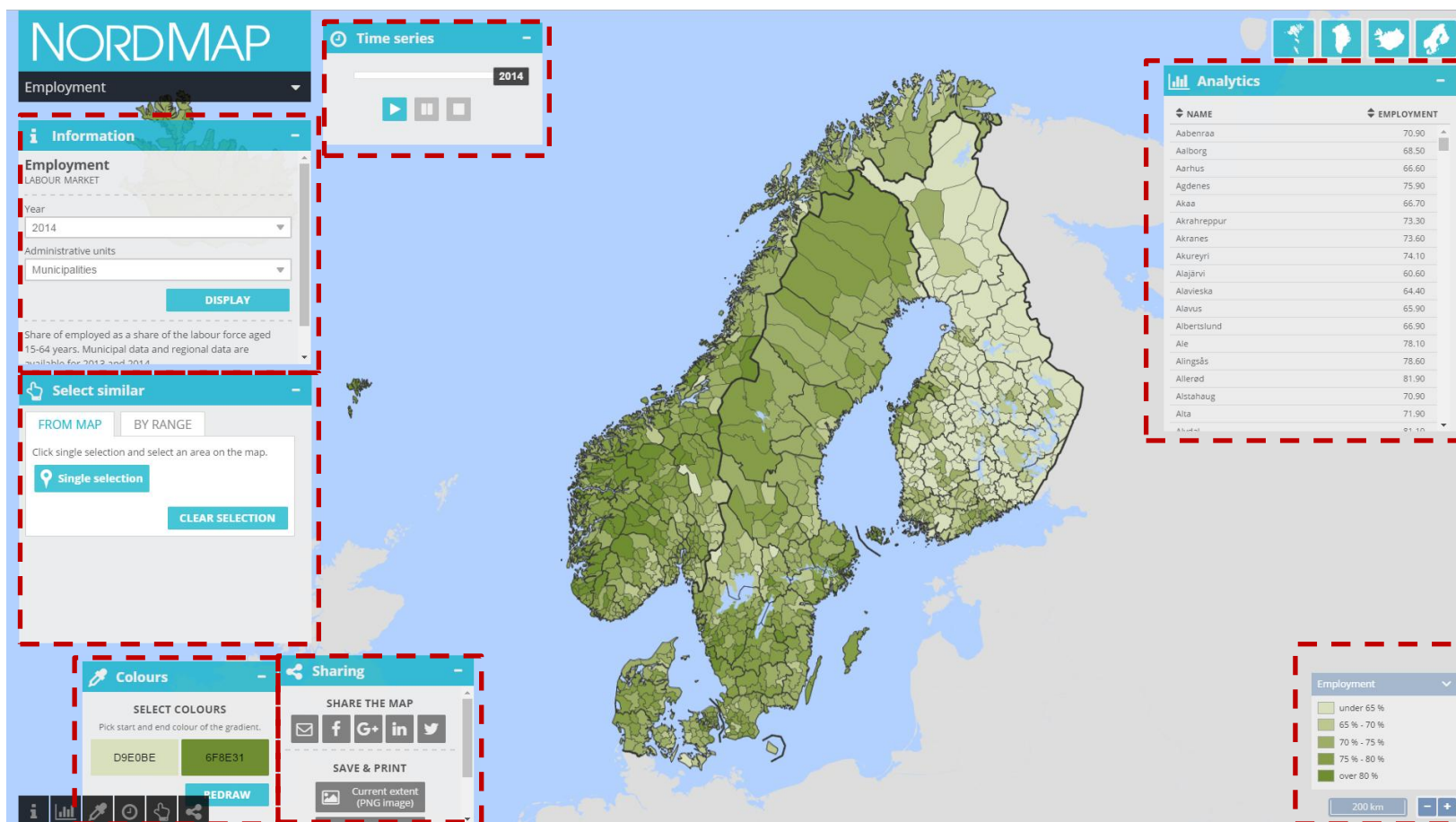


■ www.nordmap.se

■ Data at two scales: Municipal & Regional

■ Version 2.0: Computers & Tablets

How to use it

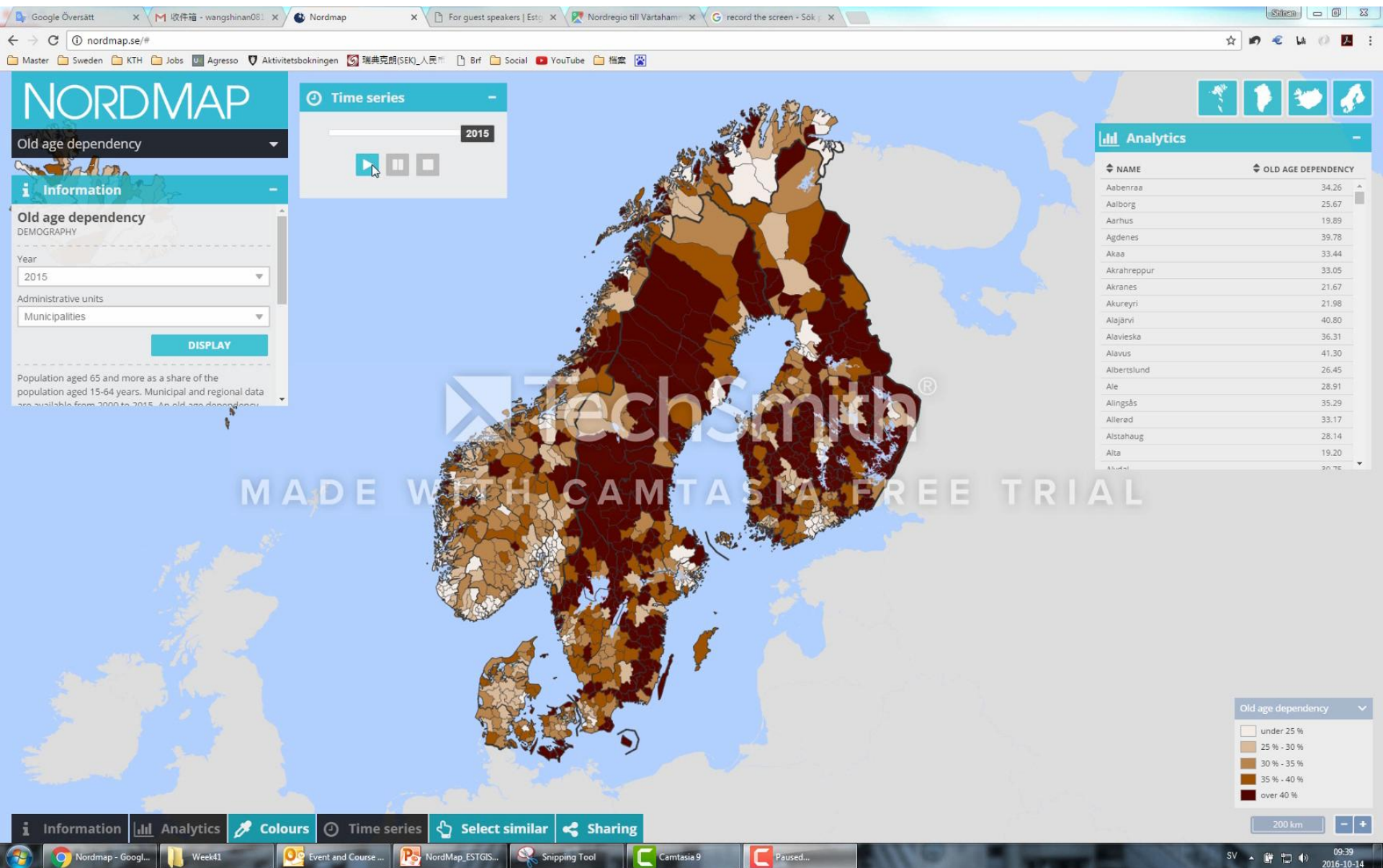


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Added value of NordMap

- Save time – Improve workflow
- Facilitate collaboration – sharing option
- Ease of use
- Save as PDF/PNG
- Free of charge
- Includes the latest data available
- Over time analysis
- Several updates



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Accessibility to Health Services in Iceland

Shinan Wang, Junior Cartographer / GIS Analyst
ESTGIS annual conference
Stockholm, October 14th, 2016



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GIS Methodology

- Network analysis
- Health Facility Locations: Ministry of Welfare, Iceland & Byggðastofnun
- Distribution of the Population (1km² population density grid): Registers Iceland and the National Land Survey, 2015
- Road network (including speed limits): Open Street Map



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GIS Methodology

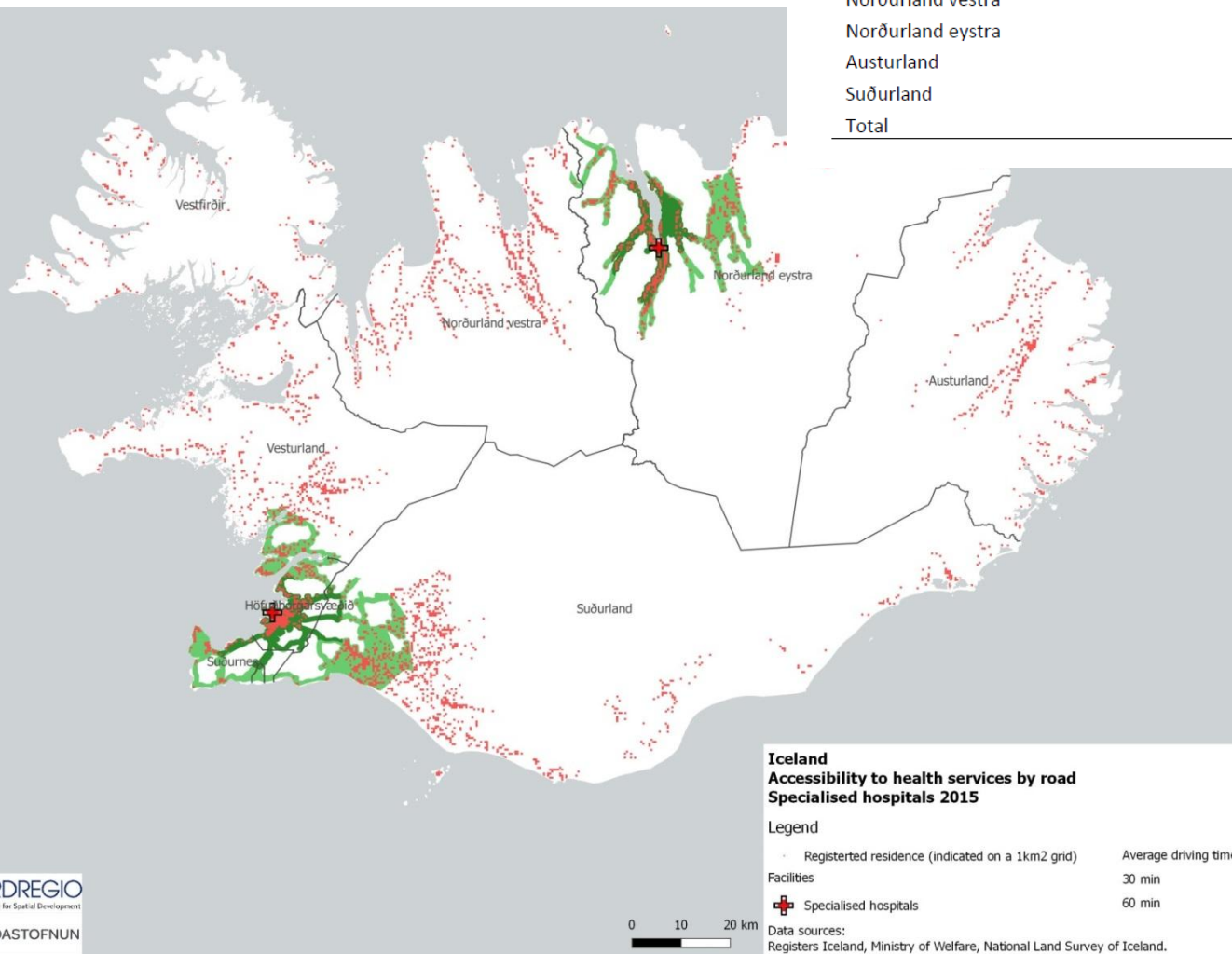
- Raw OSM traffic network data —→ Routable network (a graph, its nodes and edges/paths and different rules between these)
- A variant of Dijkstra's algorithm: calculating shortest paths from a given set of points, in this case locations of health care facilities, and finding the paths and nodes of the network that can be reached within the given cost limits, in this case driving times
- Those locations along the road network were selected and enclosed with a service area polygon that could be reached from a given facility within 30 or 60 minutes driving time.
- Unpopulated mountainous areas (> 500 m.a.s.l.), areas far from population (>10 km) and sea areas were removed from the polygons.



Results

Table 1 Accessibility to specialized hospitals for total population (%)

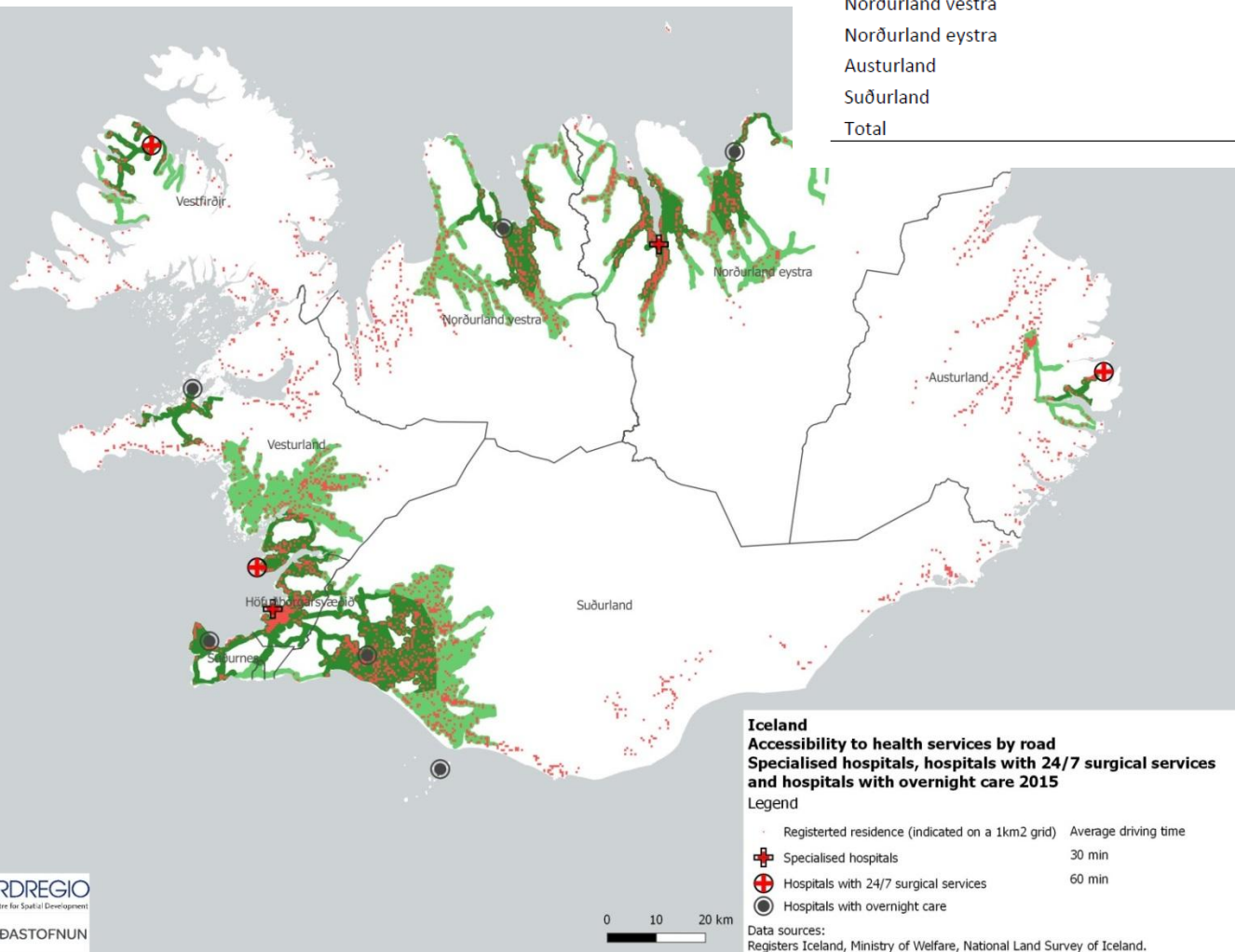
Region	30min	60min
Höfuðborgarsvæðið	99,90	100,00
Suðurnes	5,84	99,79
Vesturland	0,00	62,37
Vestfirðir	0,00	0,00
Norðurland vestra	0,00	0,27
Norðurland eystra	70,66	82,69
Austurland	0,00	0,00
Suðurland	0,01	51,43
Total	70,85	85,39



Results

Table 3 Accessibility to specialised hospitals, hospitals with 24/7 surgical services and hospitals with overnight care for total population (%)

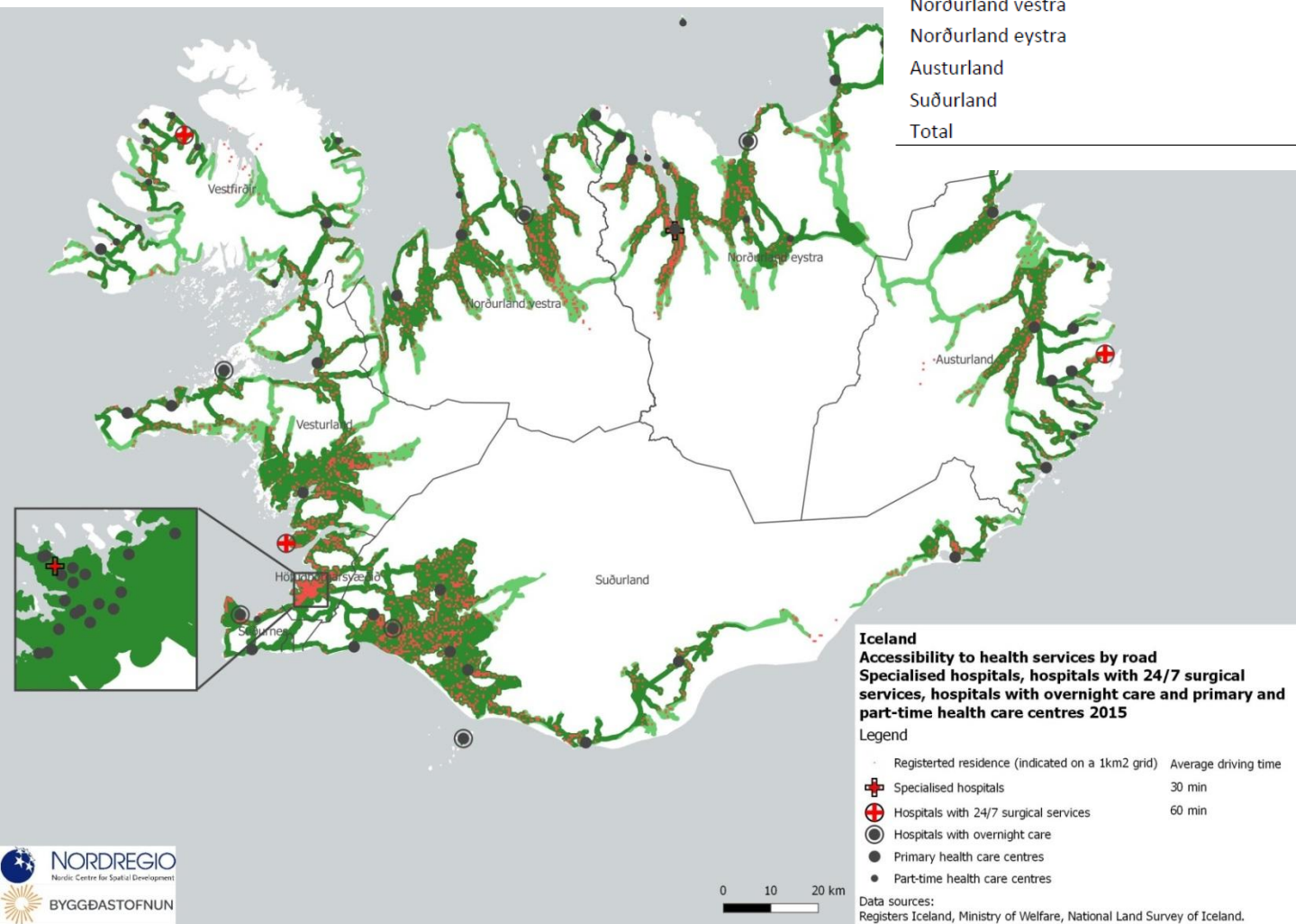
Region	30min	60min
Höfuðborgarsvæðið	99,99	100,00
Suðurnes	99,86	99,86
Vesturland	74,54	95,79
Vestfirðir	64,03	67,94
Norðurland vestra	53,37	82,79
Norðurland eystra	80,37	92,10
Austurland	33,88	70,87
Suðurland	75,05	87,79
Total	91,21	96,15



Results

Table 5 Accessibility to all facilities for total population (%)

Region	30min	60min
Höfuðborgarsvæðið	100,00	100,00
Suðurnes	99,86	99,86
Vesturland	97,87	99,97
Vestfirðir	96,73	99,34
Norðurland vestra	94,40	99,83
Norðurland eystra	99,12	99,97
Austurland	98,11	99,81
Suðurland	99,02	99,88
Total	99,48	99,95



Nordregio maps and data team



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Aitäh!



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