International Conference on Census Methods
July 31 – August 1, 2014

Statistical data assignment - from area to address point

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Washington, 31.07-1.08.2014

Usage of spatial data in CSO Poland

the preparatory works

- creation of spatial address databases

during census

- field works supporting

Geostatistics Portal:

- dissemination of georeferenced census data
- dissemination of georeferenced statistical data other than census results
- multidimensional spatial analysis

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The preparatory works

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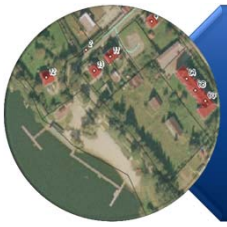
Spatial data collected and maintained within official statistics



Statistical address points database

- address points for residential buildings

Statistical distribution boundaries

- statistical regions
- census enumeration areas

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Spatial address database creation

x,y GEOCODING

- **Territorial Identification Registry *(System TERYT)* provides location data of all statistical units as the address-point of a related building**
- **Location of buildings using geographical x,y coordinates, gives the exact location of each building and makes it possible to link microdata from several registers.**

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x,y GEOCODING

- This eliminates the necessity to recalculate data when administrative boundaries are changing. Furthermore, the point assignment will allow easy aggregation and processing of statistical data in any chosen area - even for the GRID – based dissemination,
- x,y geocoding is crucial in all three stages of the census:
  - the preparatory works,
  - management of enumerators during the fields works,
  - and for multidimensional spatial analysis.

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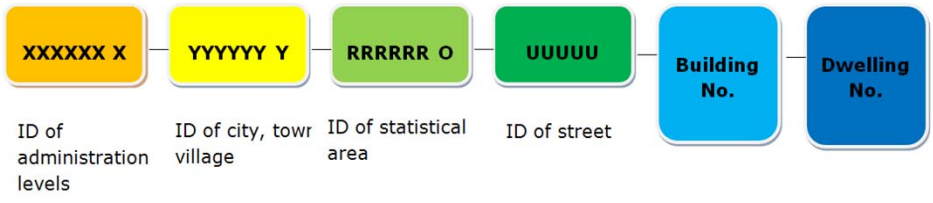
Address point identification system



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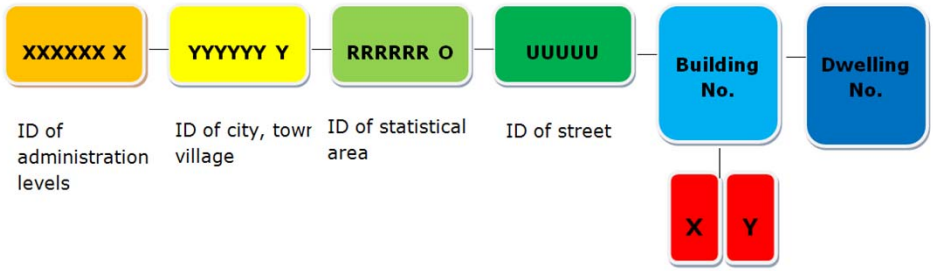
Spatial address point Identification system



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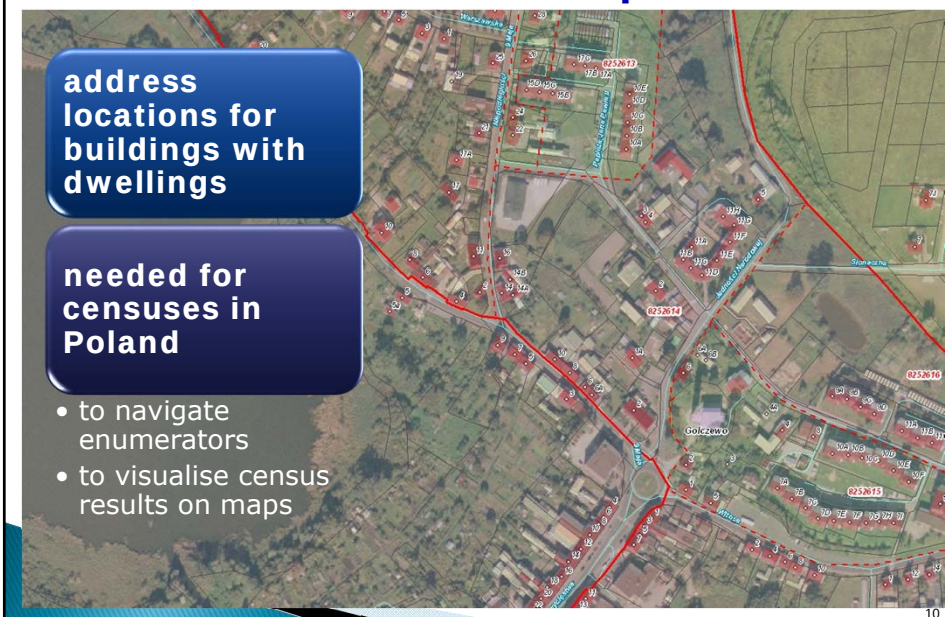
Statistical address points

address locations for buildings with dwellings

needed for censuses in Poland

- to navigate enumerators
- to visualise census results on maps



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Reference materials

Resources acquired mainly from the mapping agency and used for digital maps preparation

Data exchange with NMA

- Orthophotomap *
- Cadastral data*
- PRG (National Register of Borders) *
- LPIS (Land Parcel Identification System) *
- Roads and streets network
- PRNG (National Register of Geographical Names) *
- BDOT (Database of Topographic Objects) *
- Records of towns, streets and addresses *

* - Obtained free of charge under the Public Statistics Research Program

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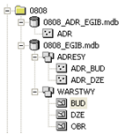
Work schedule

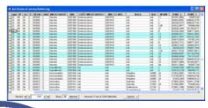
- reference material collection

January 2009 – December 2009



January 2010 – May 2010

- reference material processing

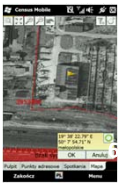


- address point update
- (gmina update, pre-census field check, census survey)

Censuses 2010 and 2011

continuously since 2011

- address point database update



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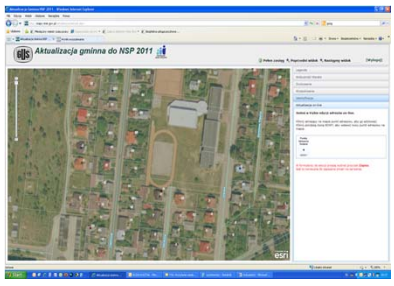
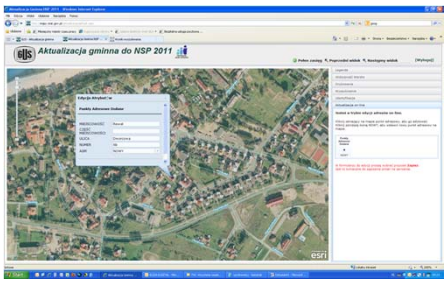
Statistical address point database update in cooperation with municipalities





- 3 weeks
- internet map service provided by CSO
- **on-line application for spatial address point database editing**
- printouts still available in case of bad internet connection

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The objectives of visual precensus servey by enumerators

- Getting familiar with the terrain
- **Confirmation** of the existing address points
- **Verification** of basic information about a given address points
- **Adding new** address points identified in the field
- **Removal** of addresses that do not exist or buildings that are not in the area

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Result

6 months time (Jan – Jun 2010)

210 GIS operators in Polish official statistics

6 million statistical address points

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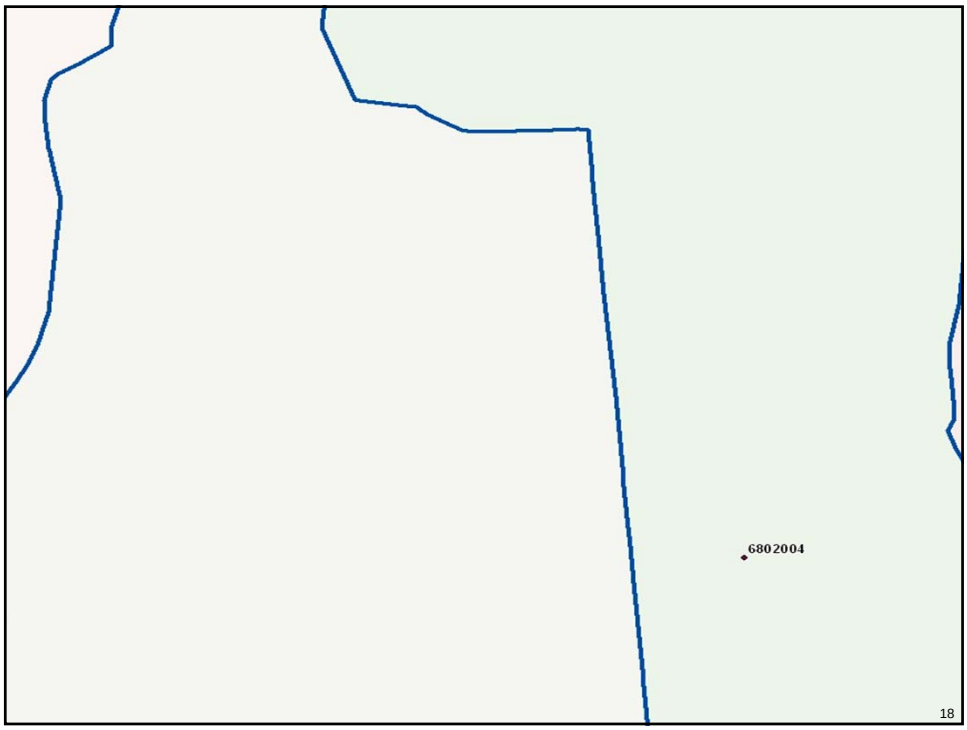
BEFORE
Ganina
Strzyżewo Kościelne
6802004
Ganina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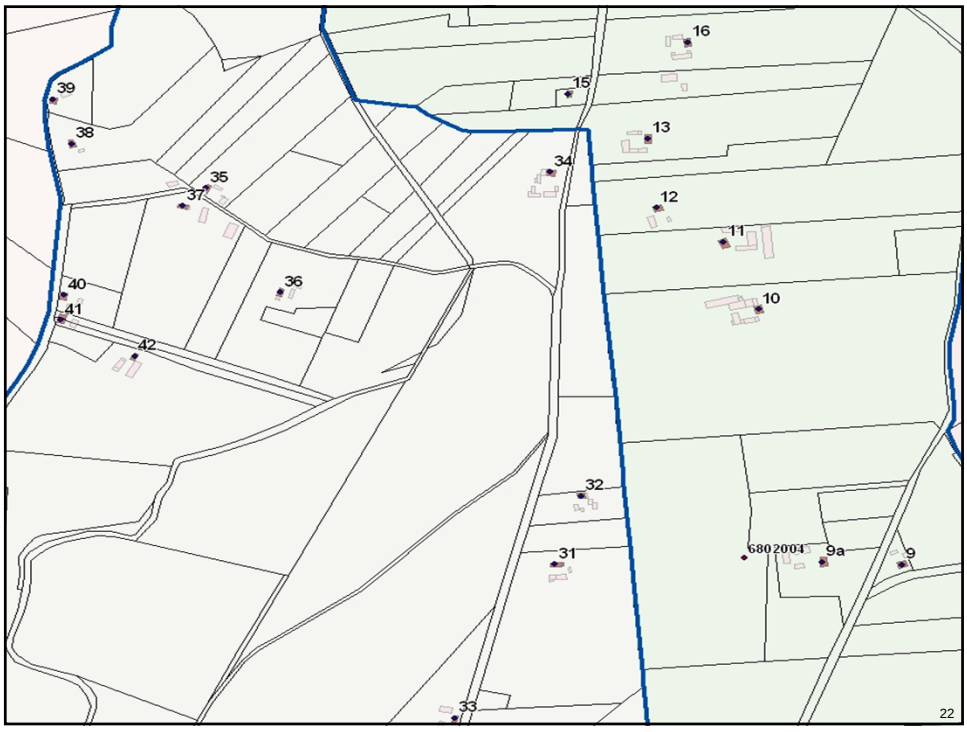
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Census data dissemination

GEOSTATISTICS
PORTAL

GEOSTATISTICS PORTAL

GEO.STAT.GOV.PL

STARTED: JULY 2013

Census results: *Choropleth maps, Diagram maps*

Local Data Bank

Other statistical databases

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Geostatistics Portal

The main objectives of the Portal

- The spatial presentation of collected data, in particular:
  - **Agricultural Census 2010**
  - **Population and Housing Census 2011**
  - **Local Data Bank** – a huge database with statistical data for years 2009-2012
- The spatial presentation of the geostatistical analysis results
- Completing tasks associated with **INSPIRE** Directive guidelines implementation

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Geostatistics Portal

The portal allows statistical data presentation in form of any spatial unit:

- **5' grid**
- **1 km^2 grid**
- **administrative division**
- **urban division**
- **statistical division**
- **any other polygon**

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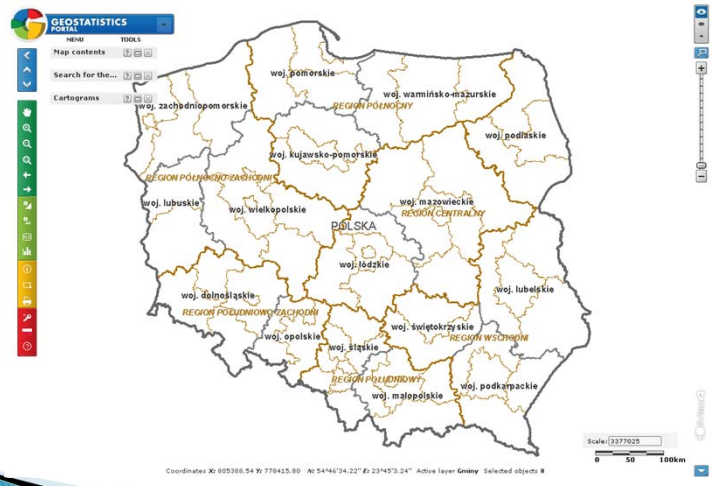
Geostatistics Portal functionalities

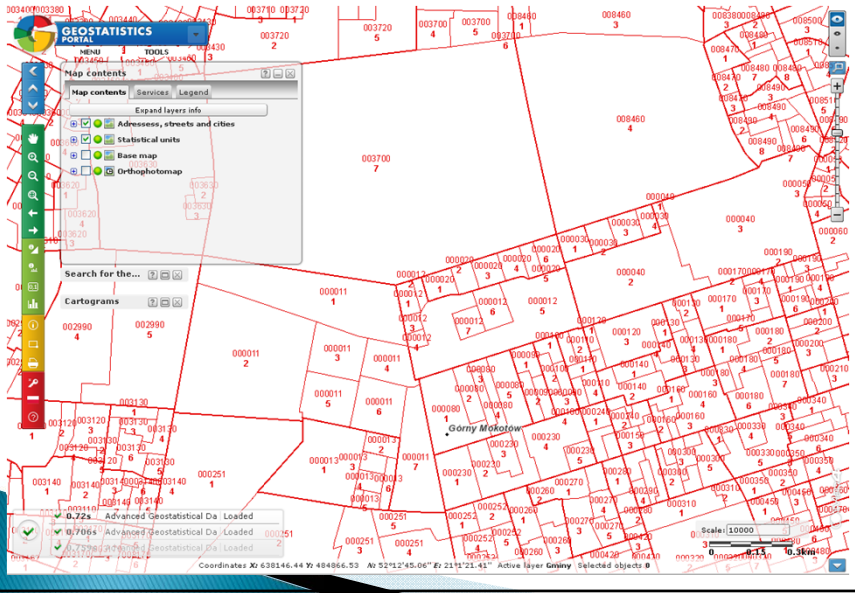
GEOSTATISTICS PORTAL

Default view



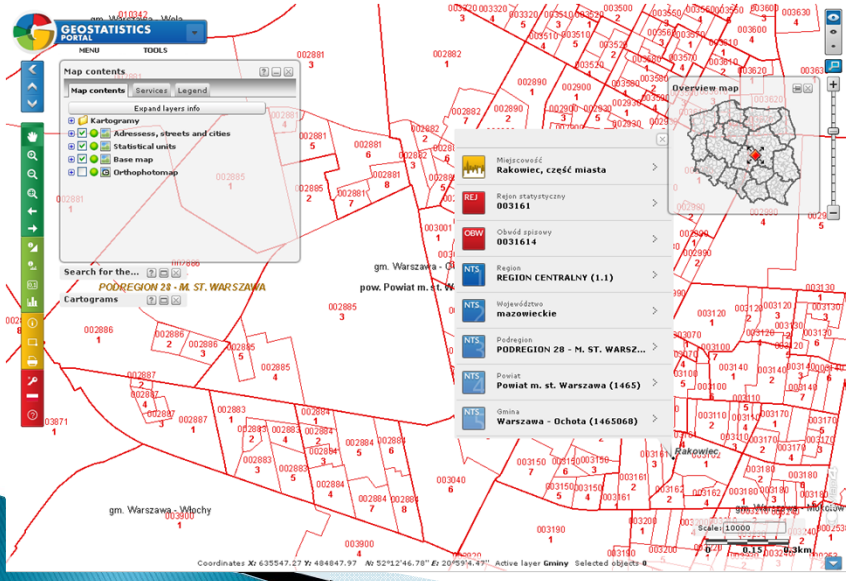
GEOSTATISTICS PORTAL

Statistical division



GEOSTATISTICS PORTAL

Object identification



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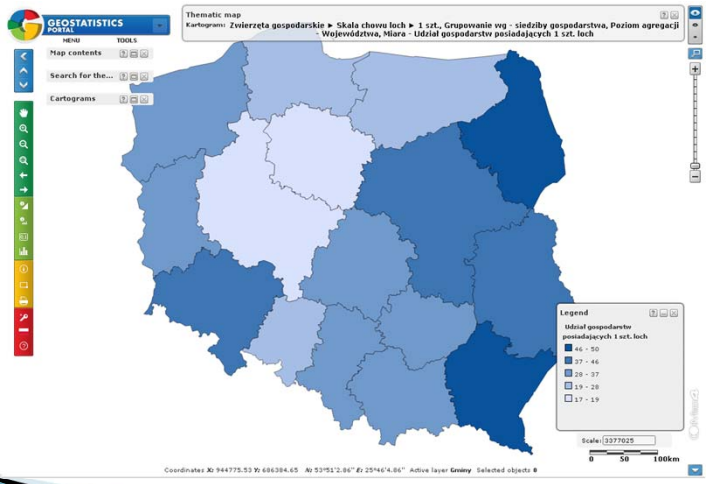
GEOSTATISTICS PORTAL

Choropleth map



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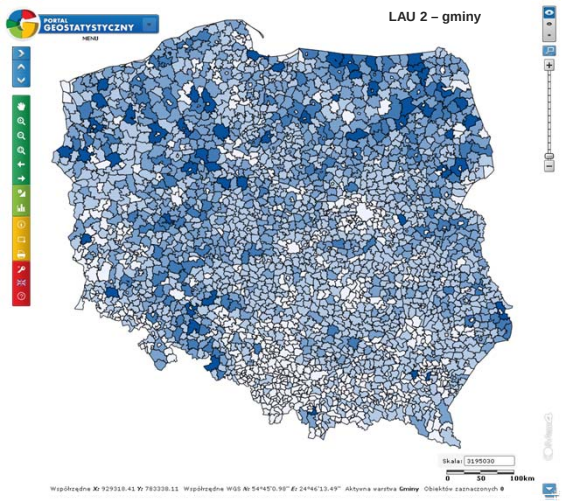
GEOSTATISTICS PORTAL

One phenomenon – various presentation levels



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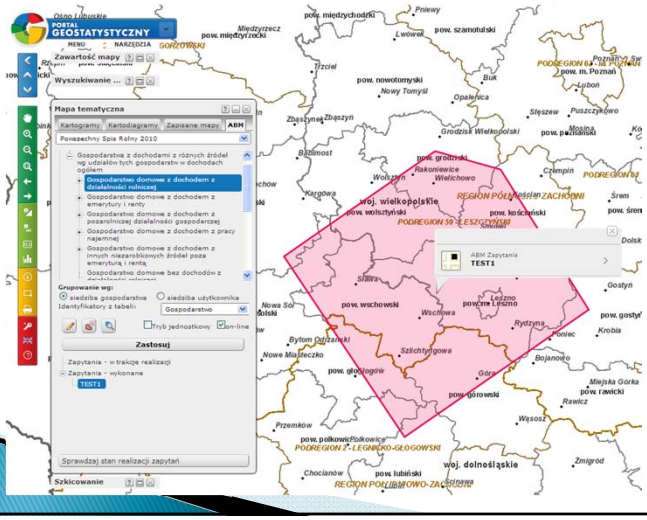
GEOSTATISTICS PORTAL

Individual data - dynamic inquiries the possibility of obtaining data from the indicated area



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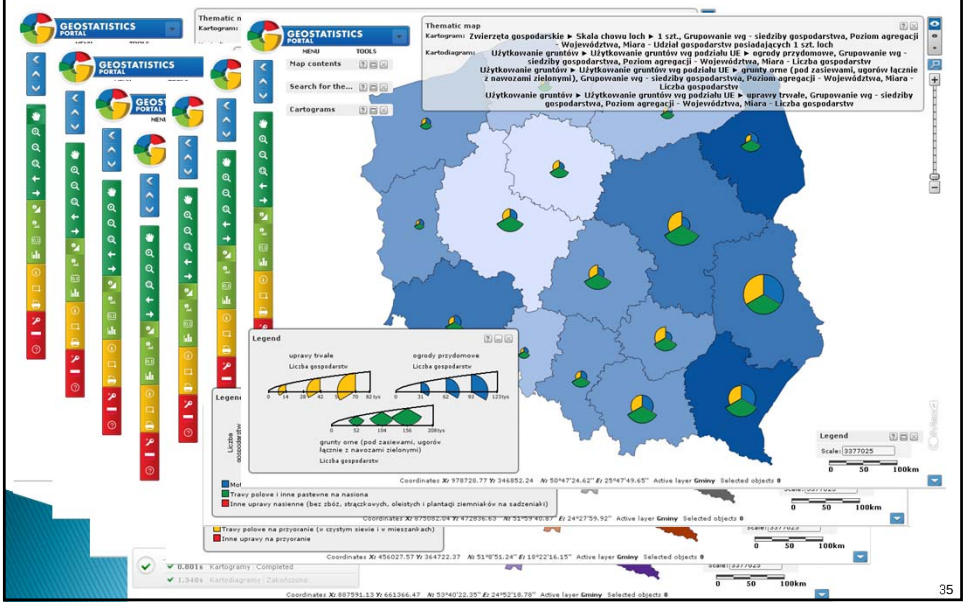
GEOSTATISTICS PORTAL

Diagram maps



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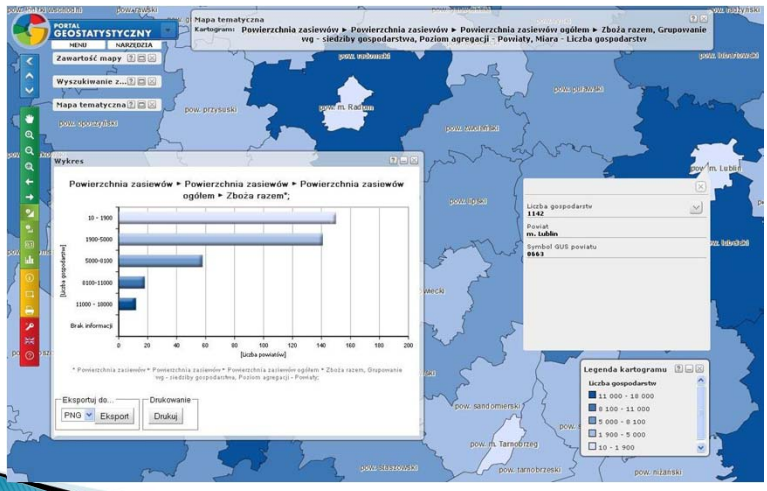
GEOSTATISTICS PORTAL

Bar chart



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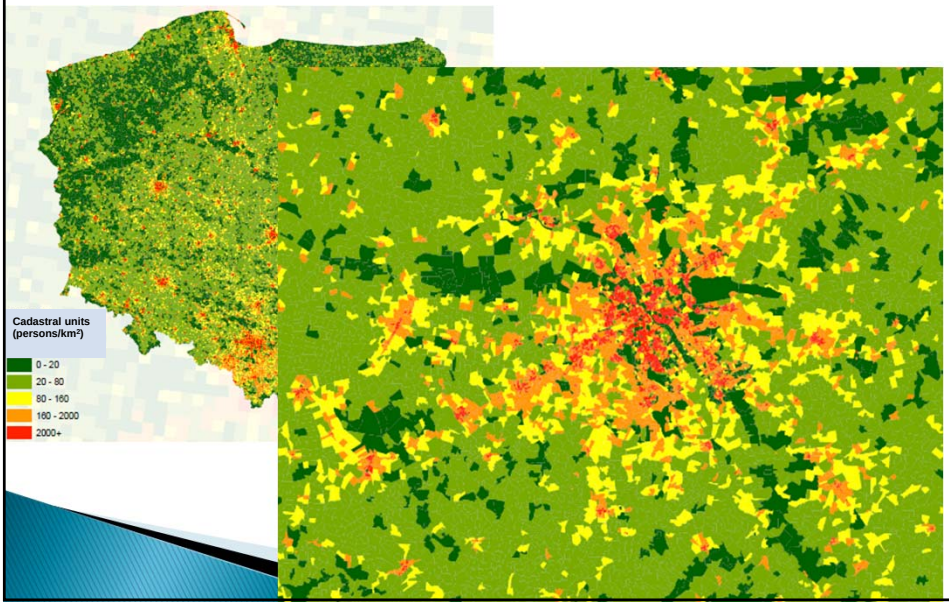
DEMOGRAPHIC DATA IN CADASTRAL UNITS

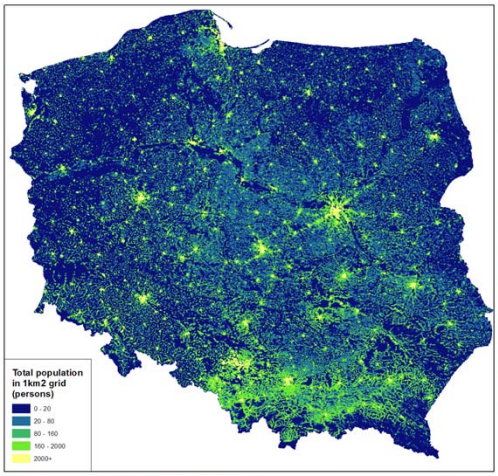


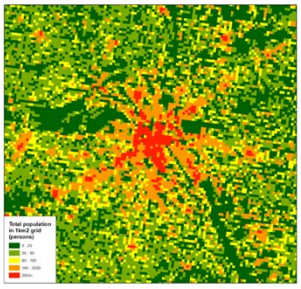
GEOSTATISTICS PORTAL

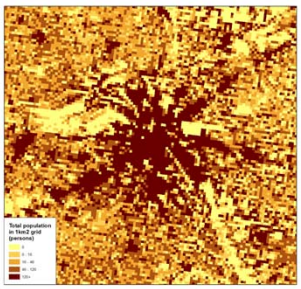
Publishing statistical data on grids

GEOSTAT project

Merging statistical data and geospatial information







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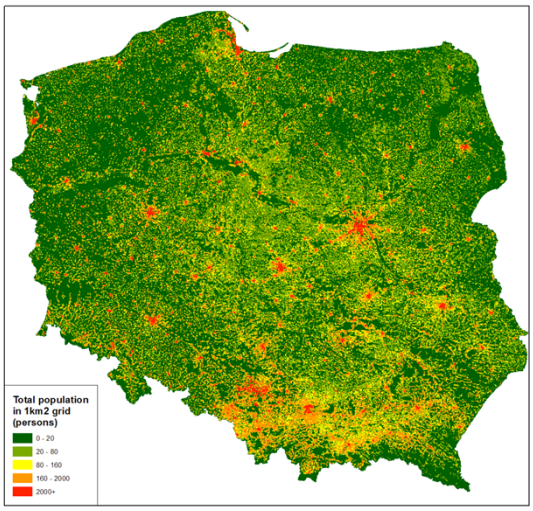
Total population in 1km² grid



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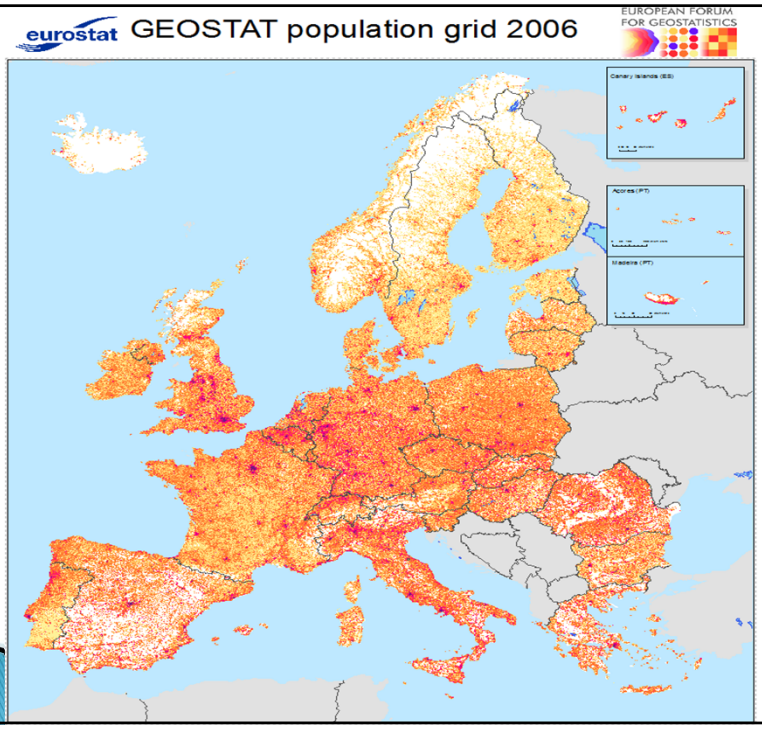

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GEOSTATISTICS PORTAL

Geostatistics Portal – benefits

- easy access to a huge amount of data on agriculture and demography (**statistical data merged with geospatial data**)
- a variety of cartography presentation methods
- spatial analysis tools
- INSPIRE compliant network services
- in the future:
  - geovisualization platform for data from other statistical sources

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GEOSTATISTICS PORTAL

New phenomena presented spatialy

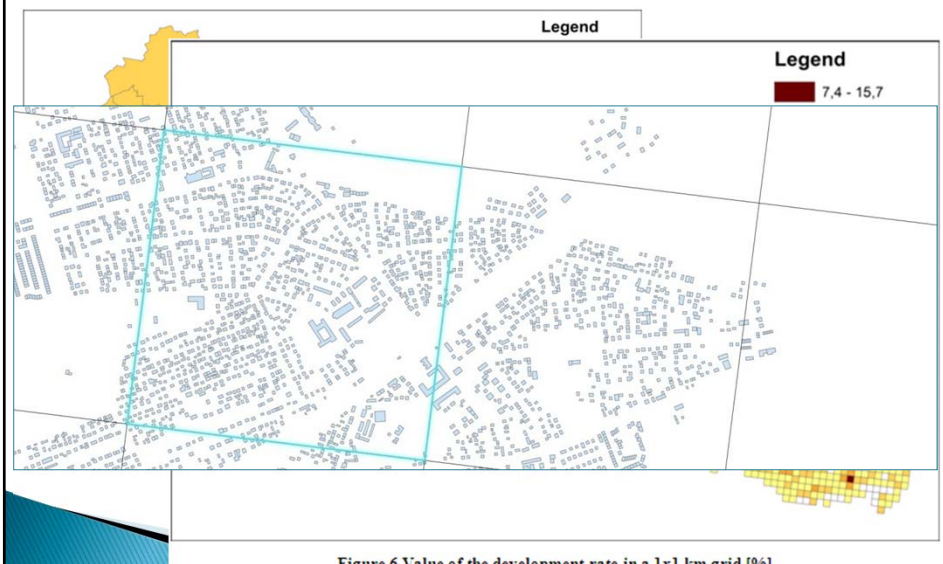
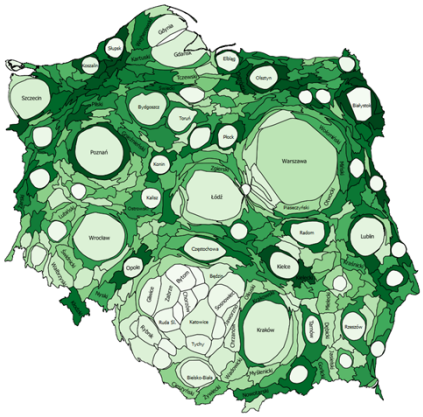


Figure 6 Value of the development rate in a 1x1 km grid [%]

GEOSTATISTICS PORTAL

New methods of cartographic presentation

cartograms



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Summing up

- **Merging** statistics and geospatial information,
- Ability to use **selected map layers** according to current needs,
- Census **results visualization** on maps in a GIS aplication - the Geostatistics Portal,
- **Multidimensional** geospatial **analysis** on census results,
- **Continuous update** and maintenance of the statistical address point database,

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Thank you for your attention

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