Goals of census GIS in 2011
Development of eGEOStat
Use of the administrative registers

Georgian delegation study visit at SE

Tallinn, Estonia, 13.12 – 17.12.2010

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Census GIS 2011 Goals

- Supporting the census 2011 taking in all phases:

Preparation , data collection , enumerators, data processing, dissemination

- establish sustainable management of the census spatial data
- broaden the analyse opportunities of the census results
- broaden the census dissemination opportunities

Census GIS responsibilities

- delineating pilot census areas
- producing digital census maps, for risk mitigation papper maps for pilot census
- geo-referencing household list
- supporting field work planning and monitoring
- defining census geography
- delineating enumerator areas
- geo-referencing census results
- producing gridded demographic and housing datasets
- supporting dissemination of census results, products and services

New – digital maps for Census 2011

- Re-using existing spatial data in registers
  - ETAK – Estonian Topographic Database (Estonian Land Board)
- EA boundaries
- Developing central geodatabase
- Mapping application
- Geocoding the enumerators household list

Benefits for using digital maps / mapping application

Information for enumerator:

•Where is the place of residence of the person, who is enumerated during e-census? Enumerator should not visit this person.

Monitoring the field work:

•Is enumerator able to carry out all the tasks or should she/he need help?

•Is the whole territory of the Republic of Estonia covered? Monitoring the field work

Collecting data:

• coordinates

Mixed methodology for geo - referencing the Census 2011 results

- using register based spatial data

  Geo-coded address-list (not 100% coverage)

- capturing coordinates in the field

  Enumerator captures the coordinates of the houses using GPS receivers embedded in portatable device or visually

  Captured coordinates will be sent to the central geodatabase

  During e- census – respondents will gave an opportunity visually located the house address location (under the development)

Aim: coordinates for 100 % of the census buildings

Census GIS in Pilot Census 2011

- In-house users needs determined
- Data exchange rules with data providers established
- Contribution to the state level Address Correction Project (AKP) – separate project
- Start of the development of the Estonian Geostatistics Database – separate project
- Acquisition of relevant GIS SW
- Estimation of the personnel needed for Census GIS
- Vision for the enumerator mapping application
- Development of the training materials for Enumerators
- Development of the census geography and the coding scheme

eGEOStat – Estonian geostatistical database

- Separate sub -project

- Long- term goals
  - production of geostatistics,
  - readiness for INSPIRE Directive
  - Supporting production of statistics

eGEOStat – Estonian geostatistical database aims

- providing geo-referenced statistics - Population and Housing Census, Agricultural Census, other surveys
- supplying customers with gridded population dataset (1000x1000m, 500x500m, 250m x 250m)
- supplying customers with geostatistics / spatial queries and analyses
- enabling automated delineation of census enumerator areas
- supporting census planning, taking and monitoring by census digital maps
- supporting census dissemination

eGEOStat – development phases (I)

- Vision, goal setting
- Preliminary Analyses

  Work flows

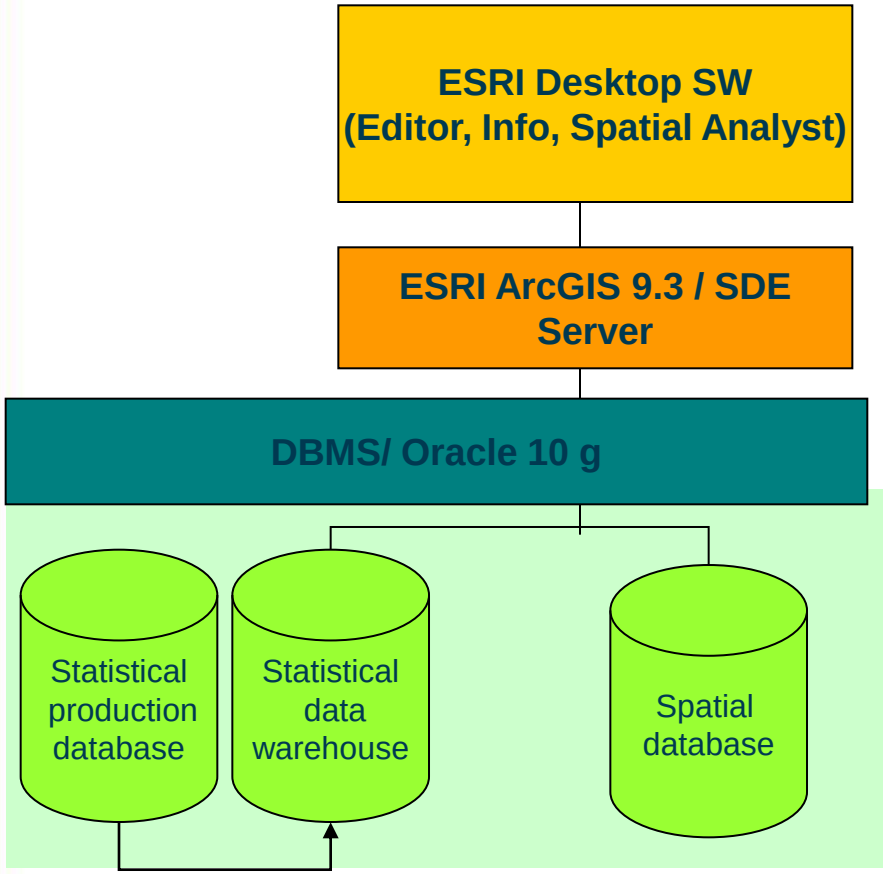
  Data exchange rules

  Development of the conceptual, logical data model
- Scope – project technical description
- Tender

eGEOStat – development phases (II)

- Detailed analyses
- Physical data model
- Establishment of database
- Data migration
- Representation model for the census map
- Metadata rules
- Archiving rules
- Testing
- Implementation
- Documentation
- Training

e- GEOStat - production environment



- Database Management system: Oracle 10g
- GIS technology: ERSI ArcGIS 9.3/ SDE
- Spatial data processing: ESRI Desktop SW
- Final testing was pilot census in 2010
- Currently in production environment

eGEOStat Data providers – Administrative registeres

- Estonian Land Board:

  Topographic data
  Ortophotos
  Cadastral data
  Geocoded address list
  Administrative borders

- Construction register:

  Building attribute data

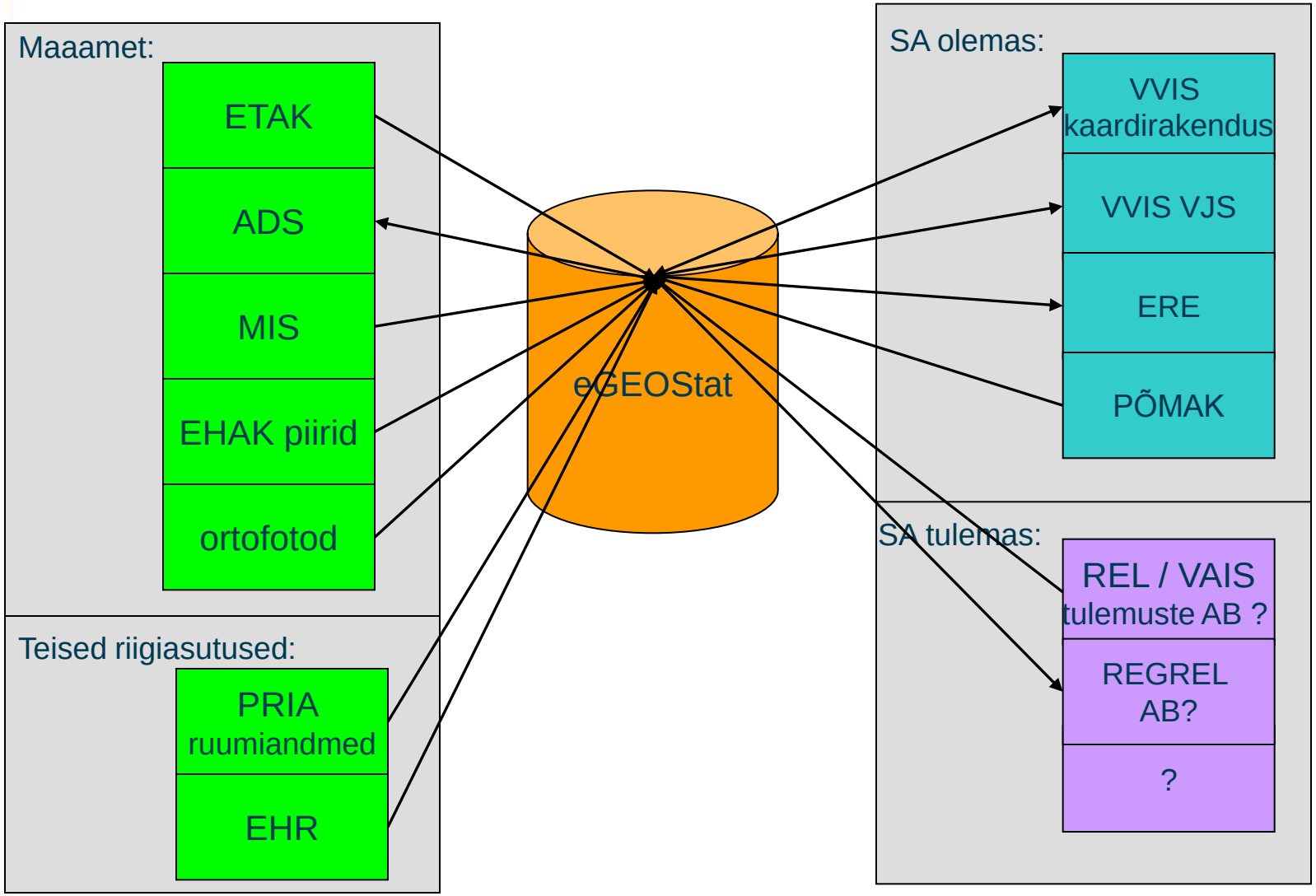
- Population register:

  Population attribute data

- Estonian Agricultural Registers and Information Board:

  Agricultural data

eGEOStat connection with other DB-s, 03.2010

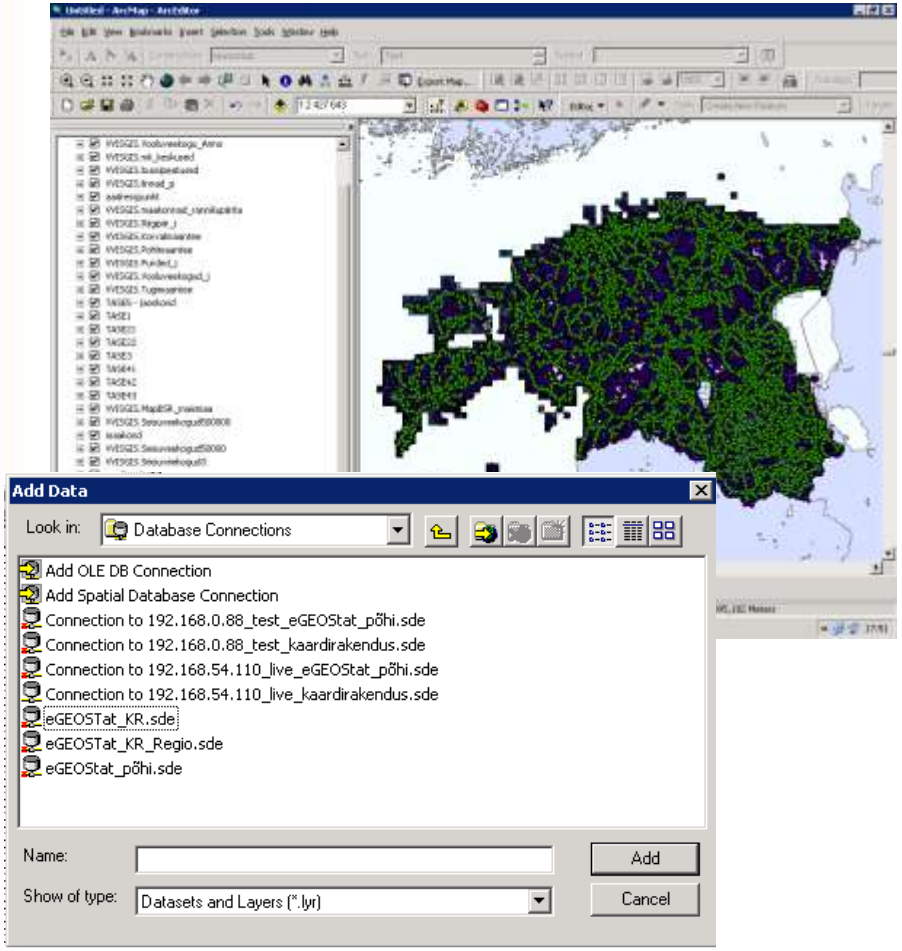


What data are stored in eGEOStat?

All spatial data

- Topographic data (streets, rivers, buildings) for producing census maps
- Ortophotos
- Borders :
  - NUTS ja LAU (statistical dissemination territories)
  - Admisnitrative borders since 2000
  - Enumerator areas
  - Cadastral parcels
- Geocoded adresses
- Gridded statistics

eGEOStat – Estonian Geostatistics Database



- foundation for geostatistics
- foundation for any statistical mapping application (field work monitoring, enumerators, dissemination mapping application etc)
- supports statistical surveys
- enables to create spatial databases needed for different purposes
- enables multi – users simultanous data up-dating

Data updating in eGEOStat

- ETAK, ortophotos - 2 per year (01.01) + pefore important survey
  - As eGEOSTAT and ETAK are built on same technology it is possible to launche the renuwal only updated objects
- MIS = each week
- PRIA = before Acrigultural census or survey
- ADS – as needed
- EHAK – 1per year, 01.01

Archiving

- before the important survey – census moment, pilot sensus

- 01.01.

- before the large scale data updating

Work processes linked to eGEOStat

Datamanagement

Creation of Matadata compliant to INSPIRE Directive

Preparation of surveys :

- basemap and map layer creation for the mapping applications
- Management of administrative tabels needed for mapping application
- compilation of enumerator areas

Generation of Hoone_ID , needed for georeferncing the census results

- Generating of work territories/ enumeration codes

Geogreferencing survey results

- data processing
- production of gridded statistics

Statistical products:

- gridded statistics products
- spatial queries
- generalisation of Admin borders
- thematic mapping

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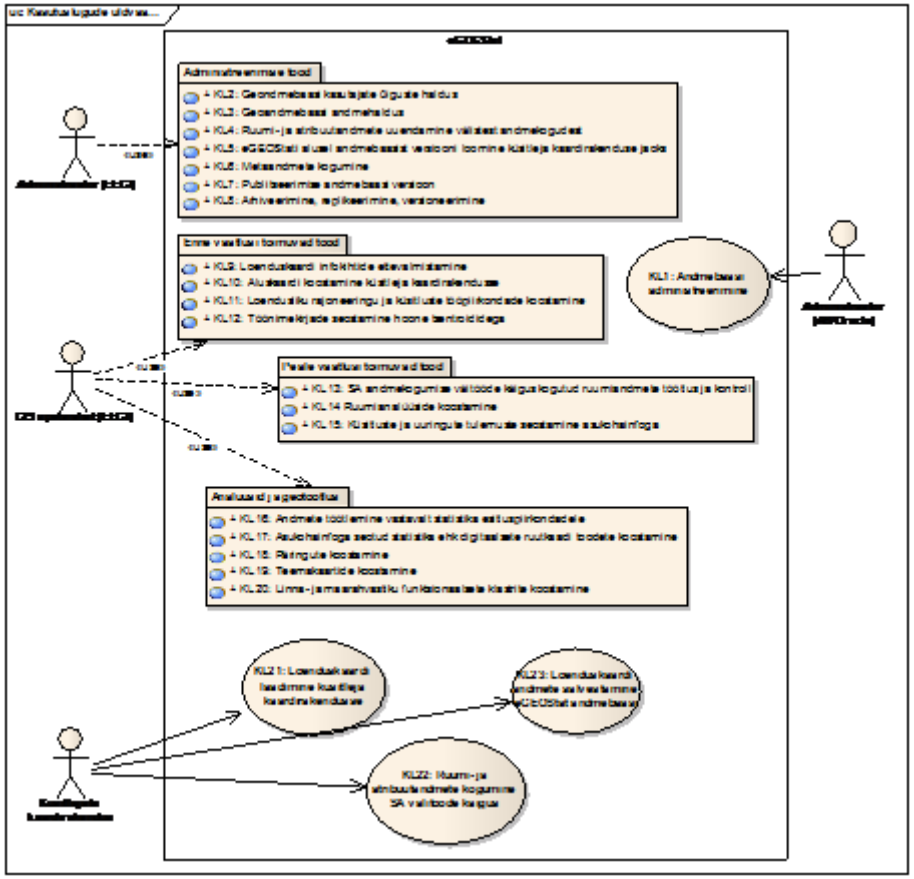
Roles and the work flows:



Enumerators mapping application is supported by the eGEOStat

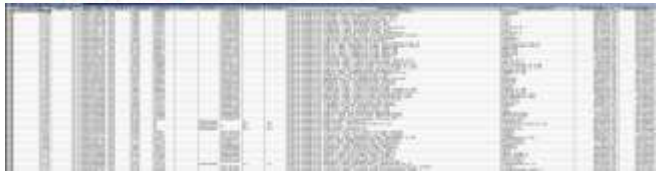
Enumerator task:

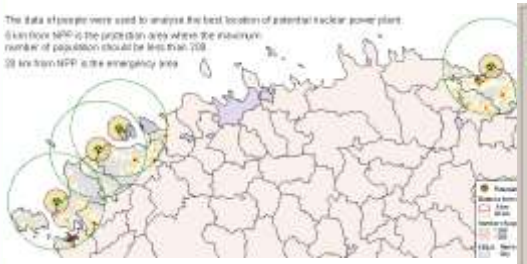
- update building data:
  occupation;
  state of building;
- update address list (x;y)

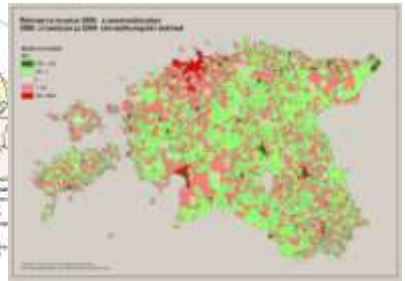
Benefits of eGEOstat

- simultaneous data updating by ca 2 700 enumerators
- number of people reduced
  EA delineation 248 in 2000 vs 3 in 2011
- reduced work steps
  production of maps, gridded population dataset is quicker
- easier updating
  topographic data, gridded population dataset
- efficiancy gain in field work
  work planning, logistics, monitoring
- better customer service
  geostatistics, spatial time- series, spatial queries

Products of eGEOStat







- census geography – enumerator, supervisory, dissemination and other areas
- census rastermaps;
- vector layers for Enumerators mapping application
- paper maps for risk mitigation
- gridded population datasets
- updated georeferenced address list
- spatial queries / geostatistics
- thematic maps
- INSPIRE compliant matadata

eGEOStat

- Developing database for supporting geo - statistics

Vision

- yearly renewable gridded population statistics

- need for the geo- referenced statistics is increasing in EU, particularly in all socio – economical indicators

Preparation for the Pilot Census

temporary quick solution in Google Earth for the supervisors

Thank You!

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