



GRID map of Household and Population data in Kosovo

European Forum for Geostatistics, 5 - 7 October 2009,
in The Hague, Netherlands

SUMMARY

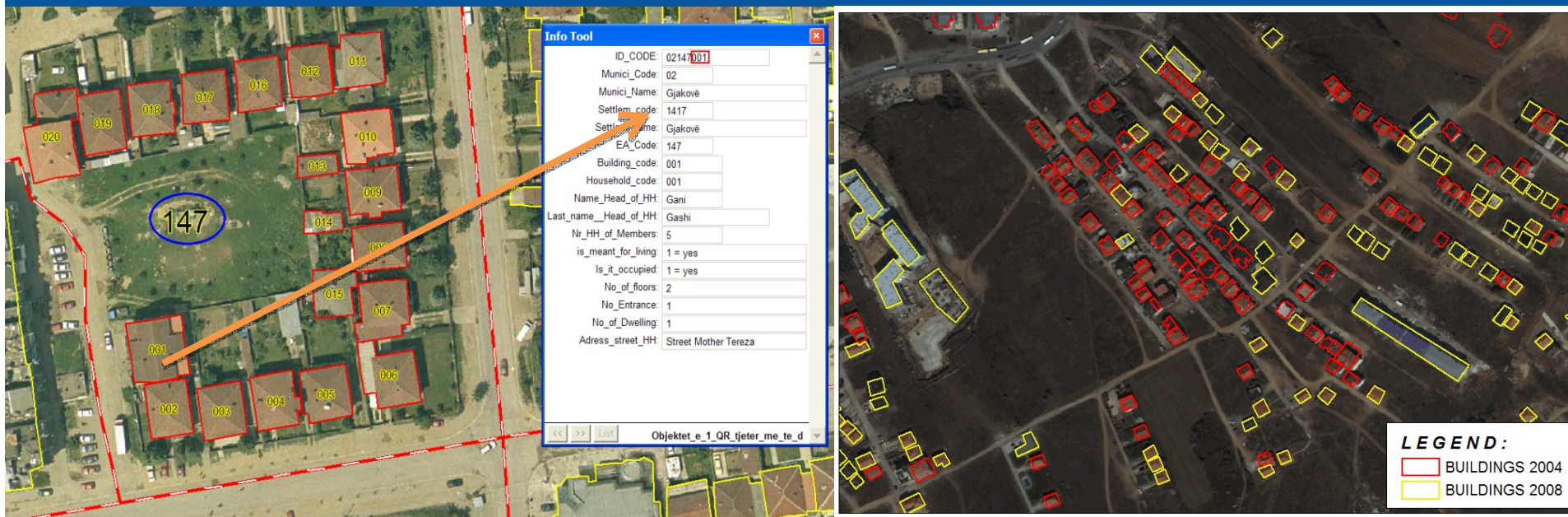
- Introduction
- Data sources
- Methods
- Results, & Maps
- WebGIS – Description
- Future Activities

INTRODUCTION

- This presentation elaborates the activities on GIS statistical data collected directly from the field and which will serve the future population and household census in Kosovo.
- The first part of the presentation will present the methods on data extrapolation on population extension as shown on GRID map per 1 km x 1 km.
- The second part of the presentation will be focused on construction of WEBGIS describing its content with statistical information on economic, social, demographic and agriculture fields etc.

DATA SOURCES

- After digitalizing buildings from 2004 ortho-photos and updating them with 2008 satellite images, Statistical Office has collected information on number of households, number of habitants and other statistical information for every building that will serve census preparations. Then all these data are processed in GIS system and based on it was created a thematic map presented in GRID for every 1km x 1km. All information are collected directly from Households (method: door to door)



METHODS

After receiving data from the field, every building was connected with GIS and all conditions were met to create GRID (with information on number of Households and the population per every 1km x 1km) .

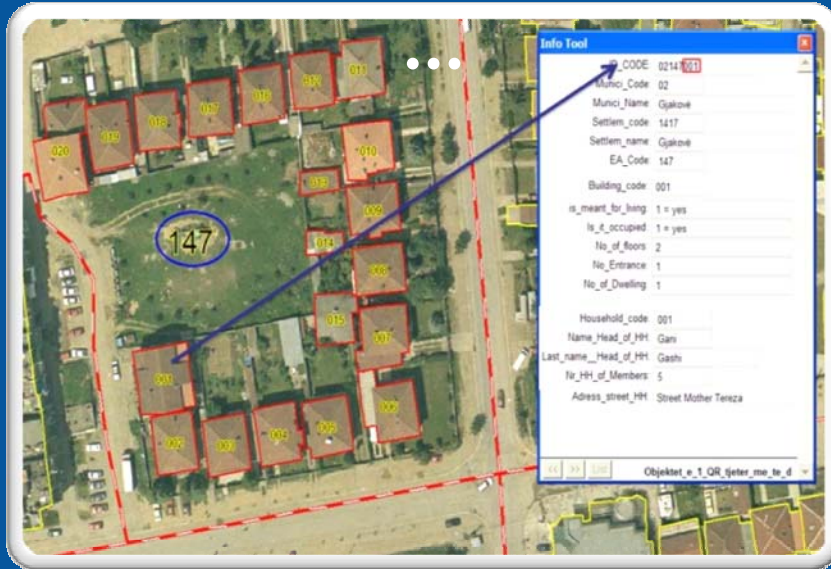
Initially were created the centroids with values X,Y with the number of inhabitants for every inhabited centroid, resident /occupied buildings, than they were connected with each GRID 1 km x 1km. At the end the vectorial base was created (GRID data on number of residents).

Grid data - elements

- Co-ordinates - attribute data of buildings
- Joining - population to buildings
- Data selection - by the attribute data of population
- IDs of grids - data is aggregated in grid squares



Vector & attribute data of buildings



Grid data - elements

Examples Gjakova city, Population by one square kilometers grid

199	381	1,132	0	18	2	44	62	66
0	28	207	41	27	178	358	54	12
87	2	184	578	56	244	120	0	0
127	95	0	284	1,994	711	150	0	0
31	114	68	0	487	1,617	1,209	67	0
14	63	114	25	0	6,414	3,308	16	0
78	40	49	224	228	3,972	10,167	604	12
202	85	97	246	1,825	2,302	8,659	1,519	5
72	145	131	88	316	78	558	476	5
76	15	76	128	61	138	190	349	143

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Data producing process - from points to grids



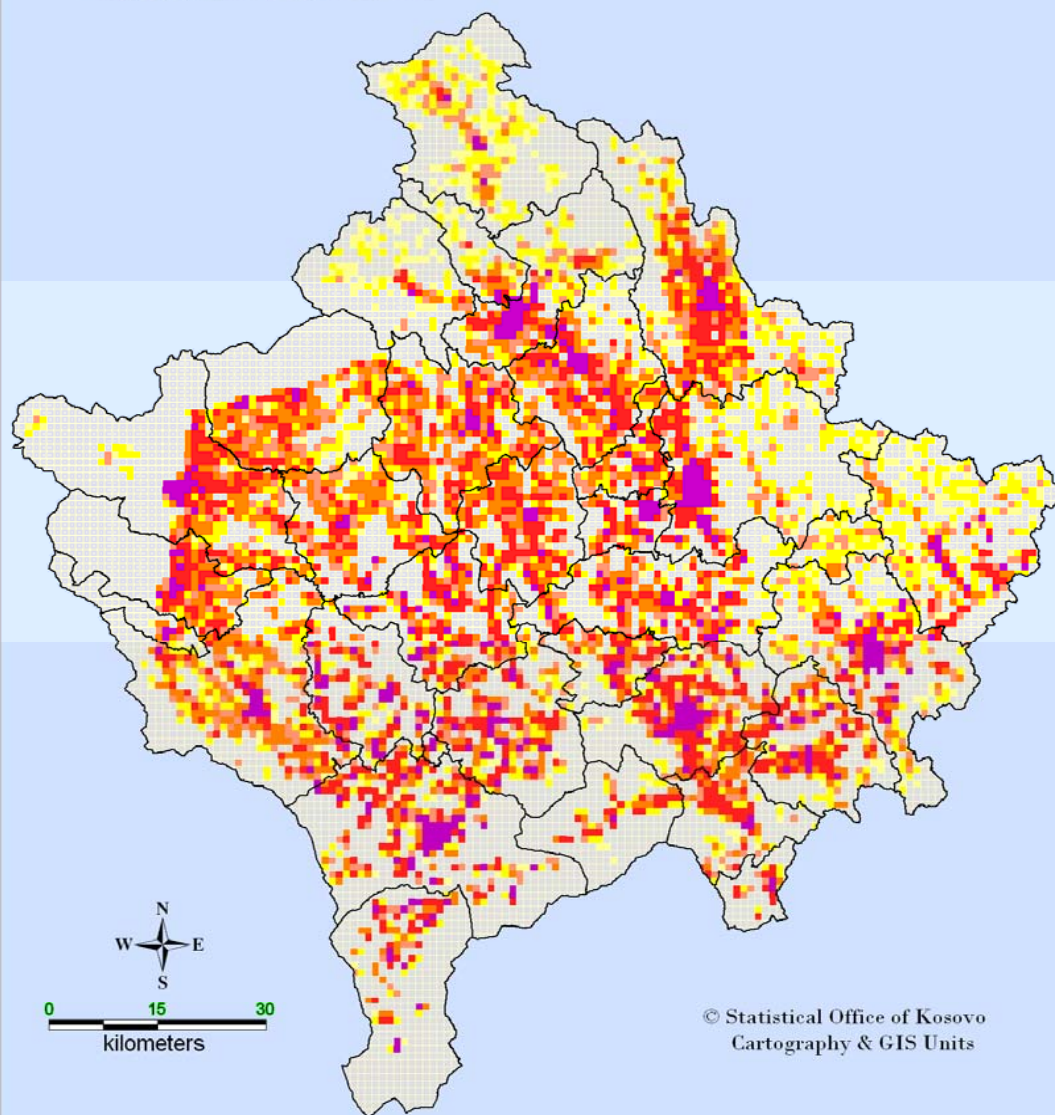
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MAPS

- Create 1 km x 1km grid using WGS_1984_UTM_Zone_34N
- Selection of Population data per each 1km x 1km
- File format MapInfo+dBase-format

KOSOVO GRID POPULATION MAP 2009

Density of population by 1 square km Grids.



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Cartography & GIS Units

LEGEND:

Inhabitants per individual square kilometres 1 km x 1 km

uninhabited	(5774)
1 - 10	(523)
11 - 50	(1276)
51 - 100	(831)
101 - 250	(1248)
251 - 750	(1243)
750 or more	(447)

Data source : Statistical Office of Kosovo
Estimate Data,

Data are collected from field listing every
present household. Informations are prepared
for population census and for other statistical
inquires.

RESULTS

Creating the map on population density with GRID (1km x 1km) method for Kosovo territory as it is vital for statistical field but also for entire society in general.

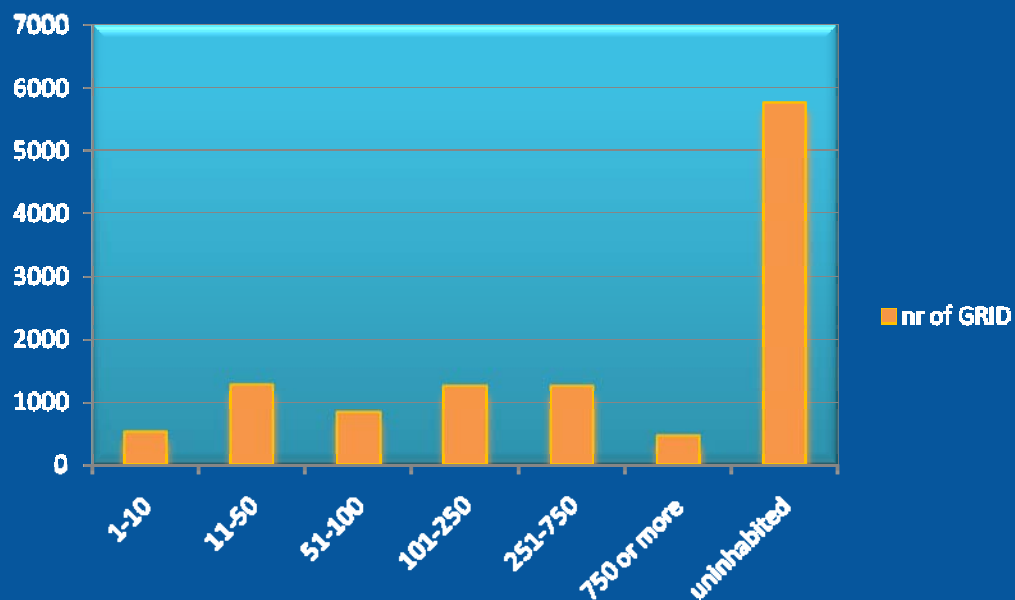
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Data are collected from field listing every present household, Information's are prepared for population census and for other statistical inquires.

Inhabitants per individual square kilometers 1 km x 1 km

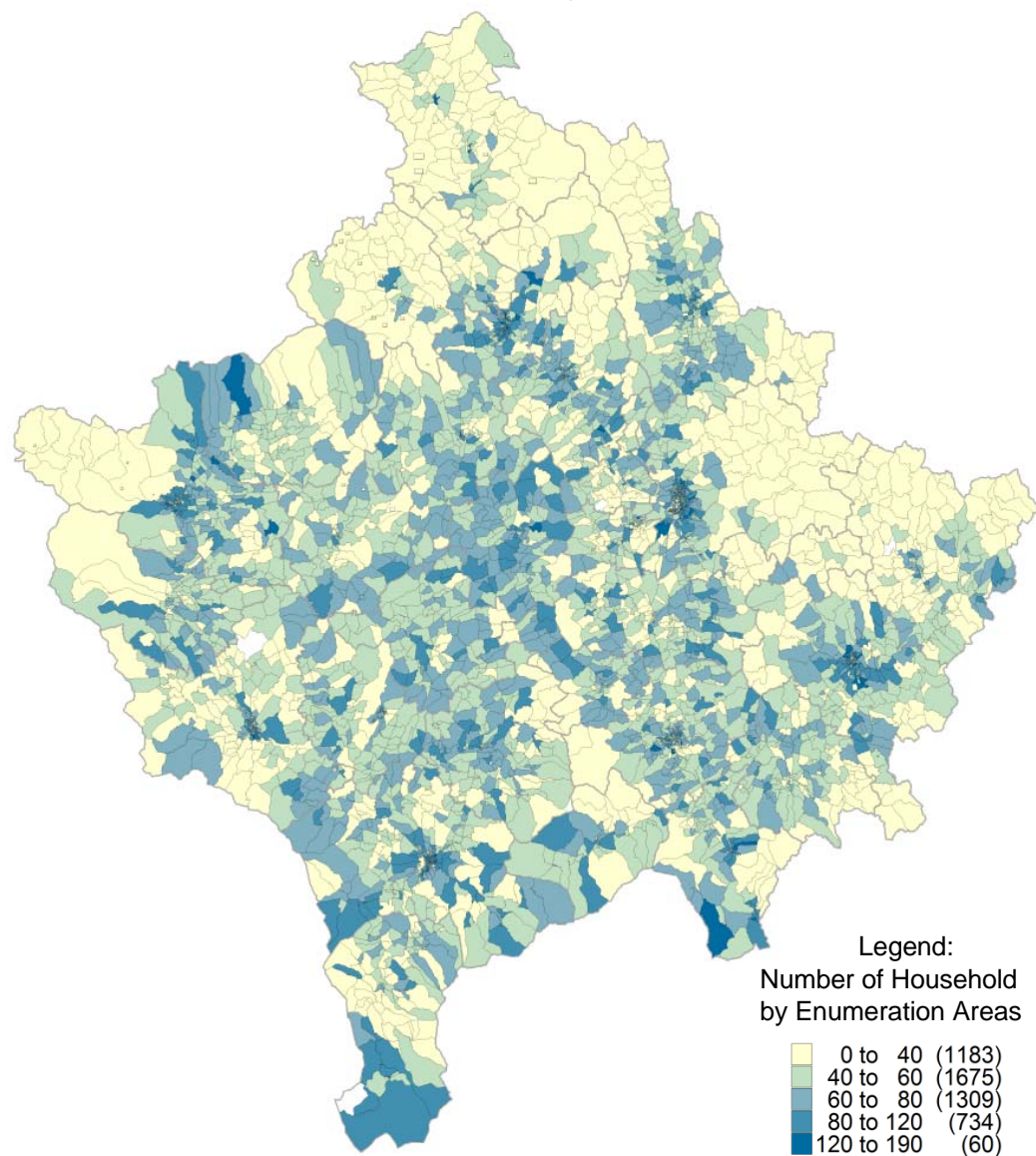
Inhabitans per individual square kilometre	nr GRID
1-10	523
11-50	1276
51-100	831
101-250	1248
251-750	1243
750 or more	447
uninhabited	5774
Total	11342

nr of GRID



Inhabitants per individual square kilometers 1 km x 1 km

The Household distribution by Enumeration Areas in Kosovo



MAP APPLICATION STRUCTURE

WEBGIS in SOK is a project to develop and disseminate the statistical information at municipal and settlement level as administrative units.

- Web GIS is based on MapInfos & GIS technology
- All layers presented by WebGIS are in coordinates system UTM-WGS 84.
- The statistical information presented by WebGis are statistics published by SOK.
- **The map layers**
territorial division (Kosovo, counties, local municipalities, settlements, Grid 1 km x 1km)

PLATFORM

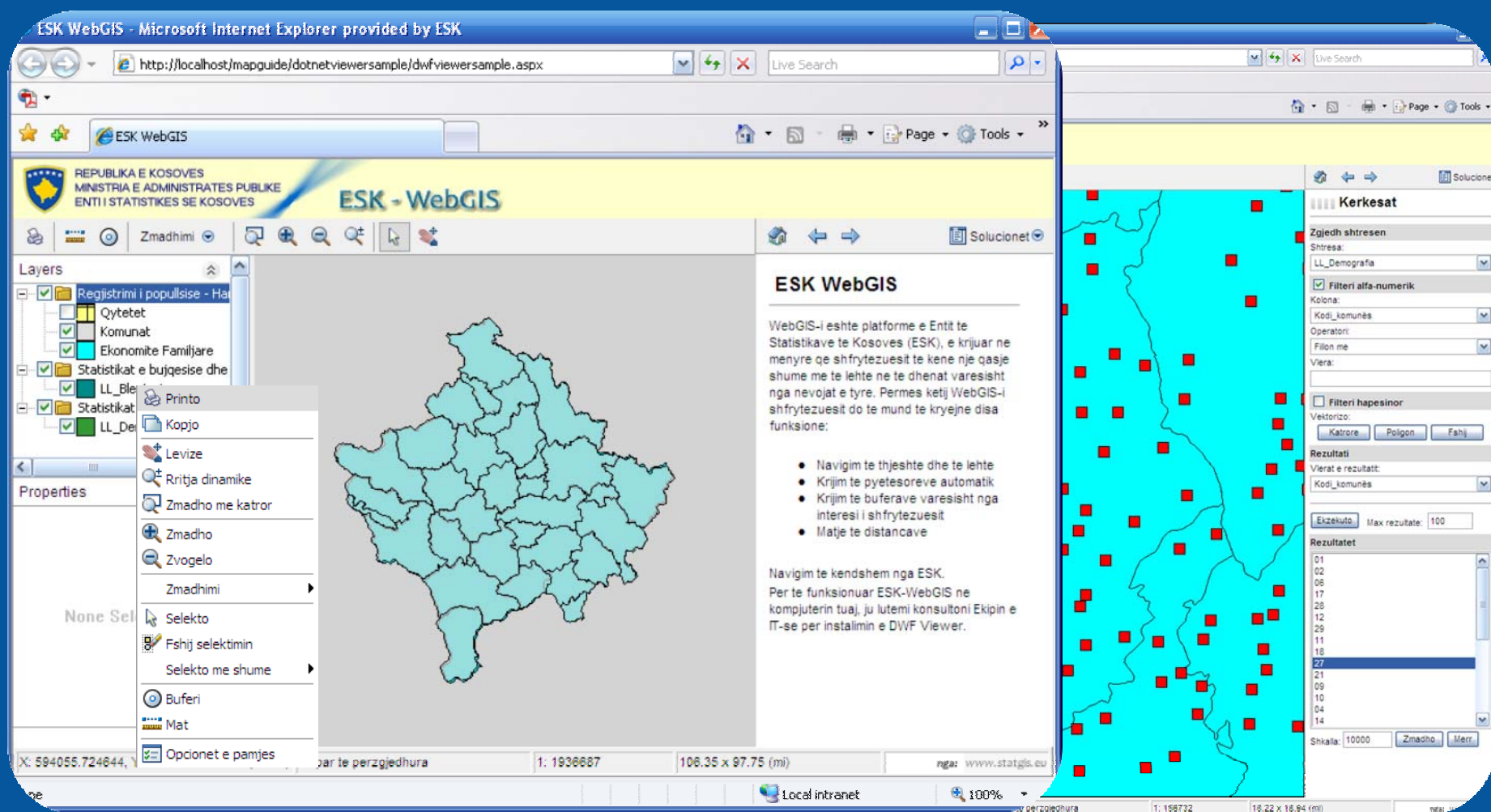
- * Web Application dedicated to SOK
- * User friendly with .NET technology
- * Queries features and view results in map view
- * Results in tabular and map format
- * Fast, good image/map quality
- * Image size limited only by server capabilities
- * User ESRI/MapInfo files



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INITIAL VIEW / MAP APPLICATION

- **The active information layers according to the map layers**
alphanumeric information, data on labour force by sectors, number of businesses and education, judicial and agriculture data, etc



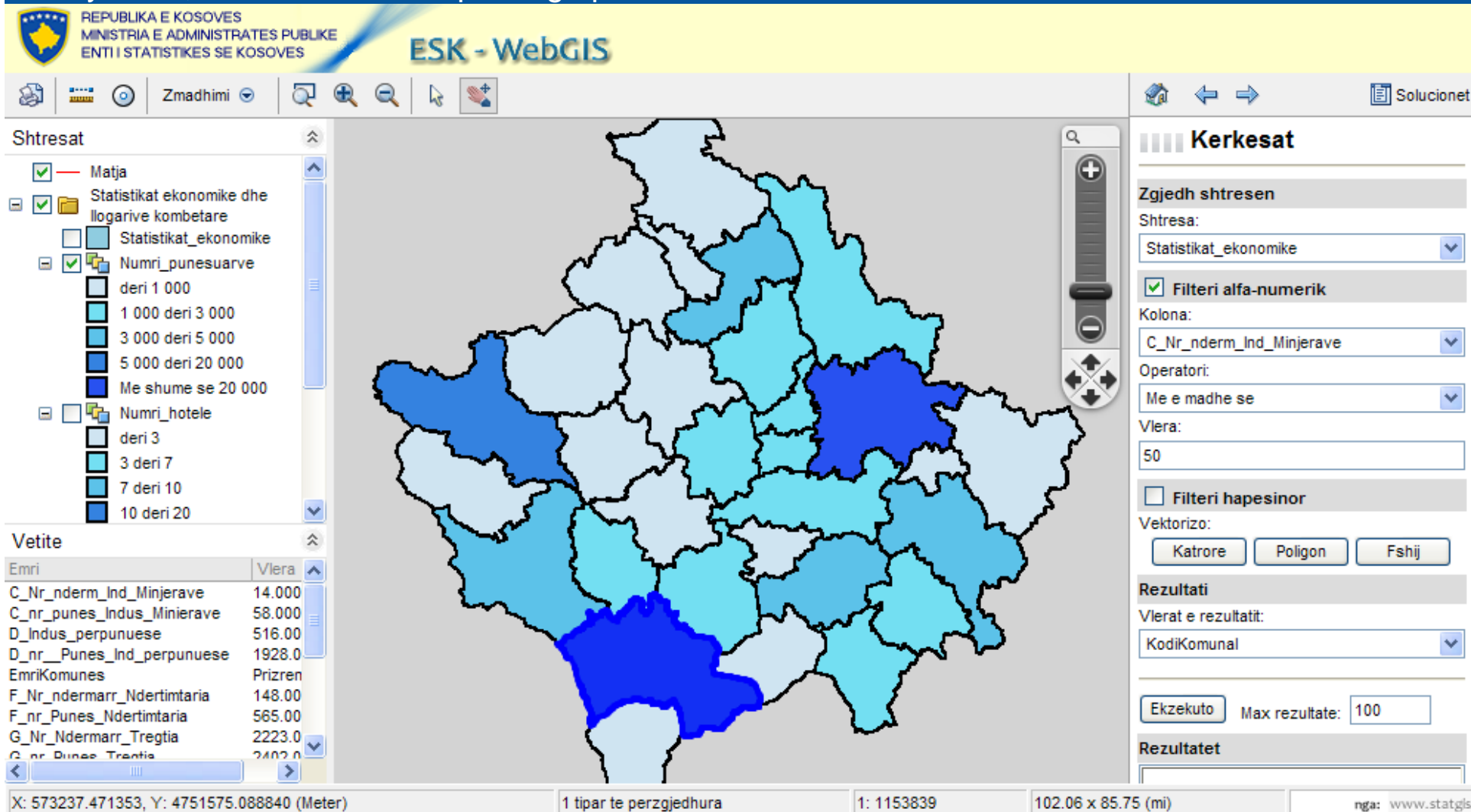


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MAP APPLICATION

•Activities

Search by location of objects, by name, Query,Bufers,Distanc,filters,select by poligon,by square by data , overview window printing options etc.



By WebGIS, SOK will provide unprocessed data for a wide range of users. WebGIS, apart from the various statistical information, offers a possibility to process and analyze the spatial and demographic information based on SQL.

WebGIS at the Statistical Office of Kosovo is currently in a testing phase, aiming that by the beginning of November to be at use for a trial period.

Planned future activities in Cartography and GIS Office are:

- Production of thematic mapping and spatial analysis, data dissemination and services
- Implementation of a grid system for all statistics data dissemination
- Updates of statistical information and its dissemination via WEBGIS
- Cooperation with other Institutions for the definition and implementation of a NSDI
- Development of metadata information



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Thank you for your attention

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