

Preparation of Census cartography in the Republic of Macedonia

Goran Kirandjiski, MSc

Short history

- Until 2002, hand-drawn maps of Enumeration Areas (EA)
- In 2007, Agricultural Census, orthophoto images used as background for most of the cities. Maps printed in B&W
- Census 2011, orthophoto images from 2009 used as background. Problem how to show all buildings in the large enumeration areas, especially in rural areas and city periphery

Legal framework

- From 2009, the institution responsible for the administrative territorial register is the Agency for Real Estate Cadastre (AREC).
Rulebook on maintaining the register
- 2010, Census cartography prepared in cooperation with AREC. Prepared Guideline for revision of the territorial units borders

Address register

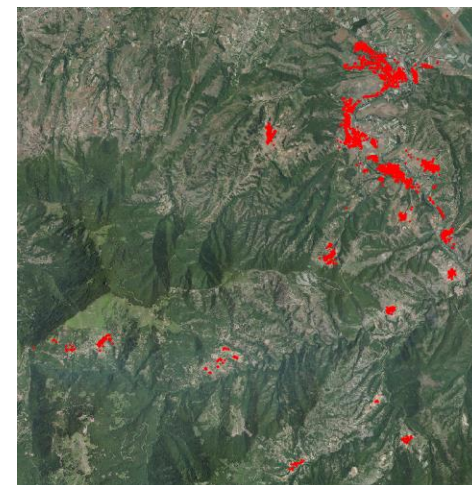
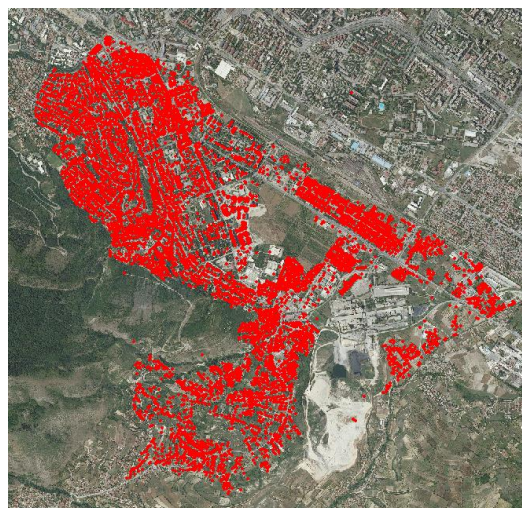
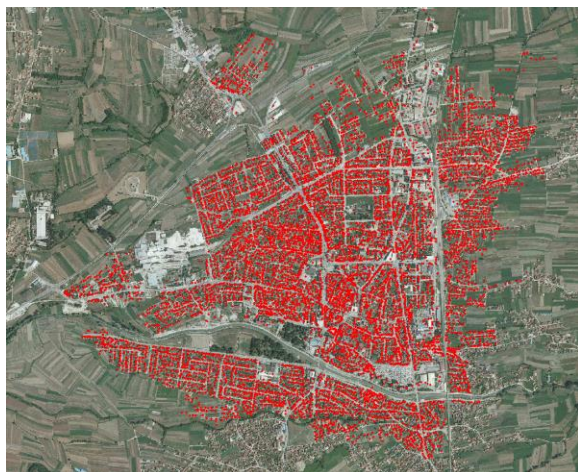
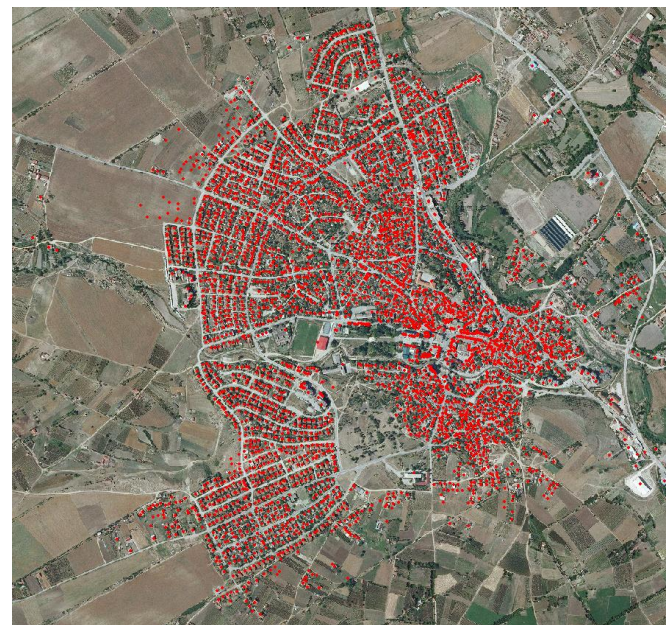
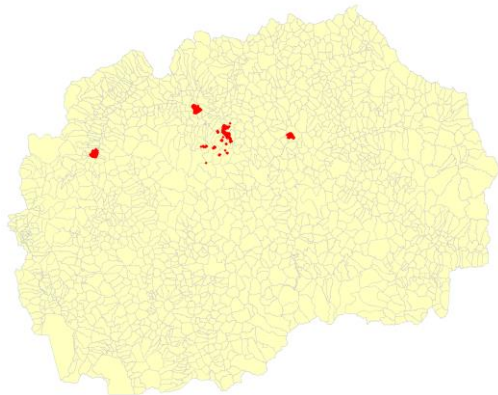
- In 2004, adopted Law on Naming Streets and maintaining a register of streets and house numbers. Municipalities are responsible for recording and naming streets and house numbers
- The institution responsible for maintaining the register of streets and house numbers is the Central Register. The register contains only alphanumeric data without spatial/graphical component

Address register (2)

- According to the Law on Real Estate Cadastre, AREC is responsible for maintaining a graphical register of streets and house numbers
- Preparation of Law on Address System (Inter-ministerial working group)
- In 2017, AREC conducted a pilot project for collecting spatial data on addresses of buildings

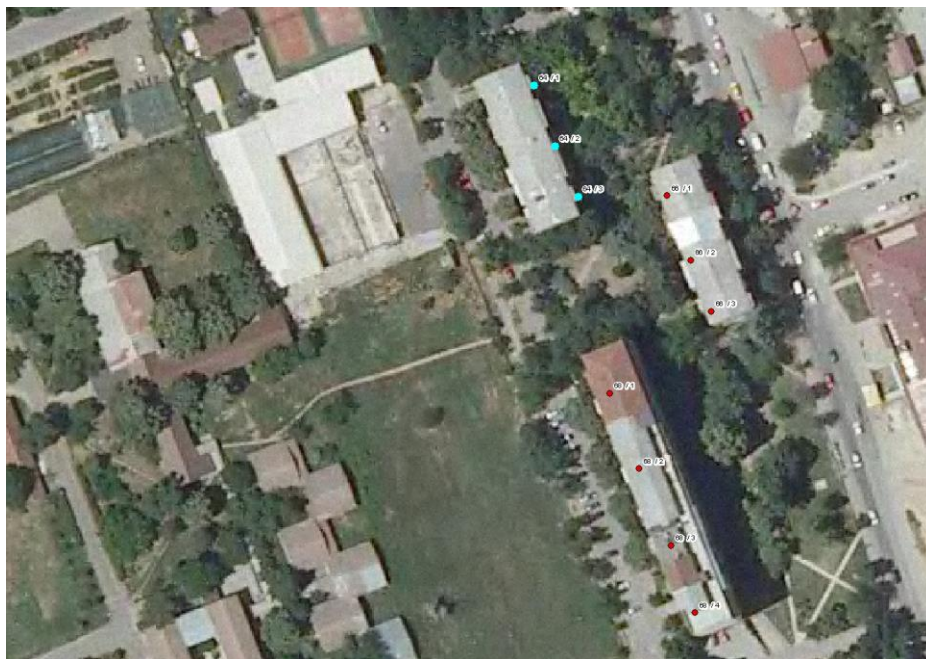
Pilot project

- Conducted in:
 - Urban part of the City of Skopje
 - Two cities: Gostivar and Sveti Nikole
 - One rural municipality - Zelenikovo (with all settlements)
- Centroids of the buildings collected with mobile application
- For buildings with more than one entrance, collected centroids for each of them
- Collected more than 20 000 centroids



Pilot project (2)

- Attributes:
 - Street name
 - House number
 - Addition of the house number
 - Number of entrance
 - Number of floors
 - Number of dwellings in the building/entrance
 - Other data



Table

KiselaVoda

Shape ^	objectid	id_ulica	ime_na_uli	kuken_br_1	dodatok_na	broj_na_ka	broj_na_st
Point	126127		ХРИСТО ТАТАРЧЕВ	64	1	5	10
Point	126536		ХРИСТО ТАТАРЧЕВ	64	3	5	10
Point	126133		ХРИСТО ТАТАРЧЕВ	64	2	5	10

0 (3 out of 7054 Selected)

KiselaVoda

Preparation of Census cartography

- Guideline for revision of the territorial units borders is being prepared
- For the Pilot Census, the following will be prepared for enumerators:
 - EA maps in printed and electronic format (as background orthophoto images from 2017)
 - Description of the EA with list of streets, house numbers, number of entrance (for buildings with more entrances) and ID

List of streets and house numbers

ID	Street name	House number	Entrance	ID	Street name	House number	Entrance
1234567	Dame Gruev	1	1	9000001	Dame Gruev	68	
1234568	Dame Gruev	1	2	9000002	Dame Gruev	502	
1234569	Dame Gruev	2a		9000003		503	
1234570	Dame Gruev	3					
1234976	Dame Gruev	501					
ID	Street name	House number	Entrance				
0098765		501					
0098766		502					
0098767		503					
...		...					

Future activities

- Fieldwork for collecting data on buildings' centroids – AREC (for Pilot Census and after for other municipalities)
- Revision of the borders of municipalities, settlements and statistical districts
- Preparation of procedures for identification of large EA according to data collected from the field
- Delineation of EA for the City of Skopje and other cities and rural areas where the Pilot Census will be conducted

Future activities (2)

- Preparation of description and maps for chosen EA for Pilot Census
- Delineation of EA for other municipalities
- Preparation of description and maps (electronic and printed format) for enumeration areas
- All activities should be finished by the end of 2019

Monitoring

- Building centroids and usage of mobile devices give better monitoring opportunities in comparison with previous censuses
- Monitoring at different levels via reports, visualisation tools/dashboards, ...:
 - Enumerator – following on electronic map what is enumerated and what is not yet
 - Supervisors – following the pace of enumeration and covered buildings by enumerators
 - At the central level - following the rate of enumerated units and identification of critical points

For discussion

- Maps for large EA with orthophoto images as background
- Detailed textual description of the EA border when enumerator will also have electronic format?

Questions?

Thank you for your attention!