

# Geospatial for Improving Tenure Governance Serbian RGA Experience

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Digitally Enabled Development for a Sustainable Future in Eastern Europe  
Vrdnik, 18th-20th September 2019



## Sustainable development

2030 UN Agenda for SD - Sustainable development goals



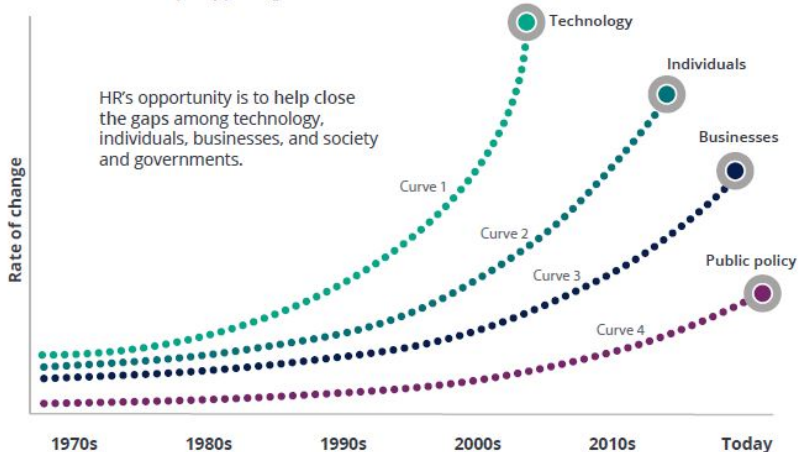
<http://efnet.si/en/2013/01/10/education-for-sustainable-development>

## Technology vs Public policy growth

### 4 Factors of production



### What is really happening



Deloitte University Press | [dupress.deloitte.com](http://dupress.deloitte.com)

## Development focused towards geospatial

Supporting economic reform of the Government by providing geospatial and real estate market data for optimal decision-making at all strategic levels.

### RGA 2020 Strategy



Reorganization

Capacity development

Digitalization

Data quality improvement

Required GeoServices



## Tenure governance analysis using geospatial data

DCP vs field situation



**Law on state survey and REC** has defined by Article.117 obligation of the owner to report any changes on its RE within 30 days, but also by Article 119. obligation of the RGA by its official **duty to monitor the changes on real estates** through the usage of periodically acquired imagery or data obtained from other sources.

**Preconditions accomplished – end of 2016** (REM Project, WB support):

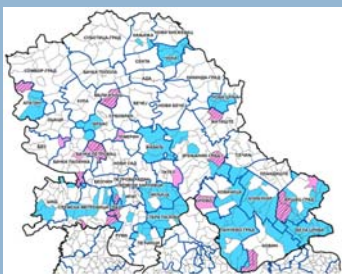
- Digitalization of all cadastral plans;
- Procured up to date VHR satellite imagery of 40/30cm GSD for the whole territory of state;
- Data in homogeneous coordinate system.

**Results - beginning of 2017:**

- Disagreement of field situation vs DCP is higher in suburban areas and its 35% in the average;
- The highest disagreement is in CMs in AP of Vojvodina where DCP are created in Stereographic projection, and its 55% in the average but going over 70 % in 43 CMs with positional errors going up to 20m.

## Decisions based on tenure governance analysis

Status of CMs in AP of Vojvodina



- Stereographic data
- Resurvey completed
- Resurvey ongoing

➤ **For CMs in AP Vojvodina where cadastral data are generated in Stereographic projection ( beginning of 2018):**

- Decision on transition to ETRS89/UTM coordinate system;
- Putting out of use analogue cadastral plans;
- Instruction for maintenance of REC – amendment of real estate survey data for the first time possible through usage of digital imagery data for identification and digitalization of real estate.

➤ **Regulation on cadastral survey, renewal and geodetic affairs in REC maintenance process (2019) –Article 90.** for the first time defined procedure on collection of data on building demolition through the usage of imagery data.



## Decisions based on tenure governance analysis

For all CMs in state excluding AP Kosovo and Metohija (end of 2017):

- Creation of **Technical specification for Evidence on buildings that are not registered in the REC** (end of 2017) - envisaged by Component A of REM Project: RE value assessment and taxation, as creation of building register serving for RE mass appraisal model definition and creation of evidence on RE which are subject of annual taxation.
- Activities on **data collection for Evidence started** through comparison of VHR satellite imagery data, DCP data, archive imagery, survey and other relevant available data and creation of geometry and assigning of attributes.

### DCP vs Evidence on buildings



- Building DCP
- Demolished/significantly changed
- New building on more parcels
- New building



## Evidence on buildings

Contains data on building changes in relation to the status registered in the REC/DCP (ETRS1989/UTM zone 34N system) for 4522 CMs (169 municipalities) and organized in following data classes:

- **New:** newly build or reconstructed buildings not registered on DCP but registered on reference imagery;
- **Demolished or substantially altered:** buildings registered on DCP but not registered on the reference imagery or registered as significantly changed;
- **Unchanged:** buildings registered on reference imagery are in compliance in size and location to those registered on DCP.

**Note:** Evidence does not contain information on building that have only a foundation built, collapsed, are completely obscured by vegetation or have been identified as not being constructed of stable material, as well as changes made by upgrading in terms of storeys.

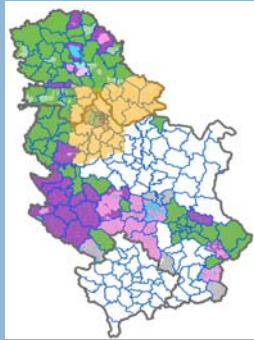
### Cases on buildings classification





## Evidence on buildings

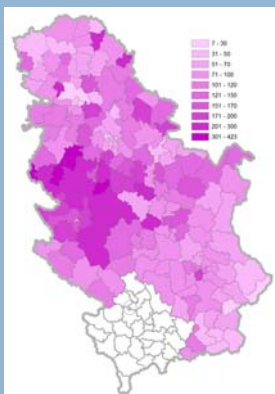
Standardized data collection, control and monitoring



Class: <b>Bilding_new</b>			
Attribute	Field type	Attribute description	Comment
M ID	Long Integer	Municipality ID	default
M Name	Text (20)	Municipality name	default
CM ID	Long Integer	Cadastral municipality ID	default
CM Name_cir	Text (20)	Cadastral municipality name (Cyrillic)	default
CM Name_lat	Text (20)	<del>Cadastral municipality name (Latin)</del>	default
Building_ID	Text (20)	Unique building identifier within cadastral municipality (CM ID + counter (from 00001 to n))	control
CP number	Text (20)	<del>Cadastral parcel number</del>	control
Area	Long Integer	Area of the building (surface)	control
Status_DCP	Short Integer	Статус службености ДКП	default
Up-to-date_DCP	Date	Date of digital cadastral plan update	DCP
Data Source	Short Integer	Orthophoto as a source for digitalization	Domain/operator
Type of Change	Short Integer	Type of change on the building	Domain/operator
Several Parcels	Short Integer	Pertaining of building on several parcels or not	Domain/operator
Comment	Text (50)	Specific building characteristics	Operator/control
Census Sheet	Text (50)	Link to the census sheet regarding the evidencing of the illegally constructed building	

## Statistics from Evidence on buildings

Relation: New/DCP

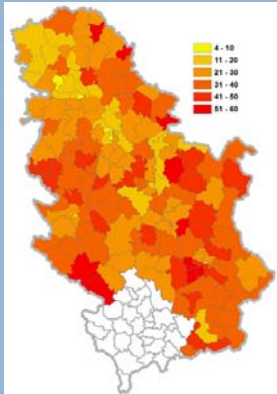


Number of parcels within DCP	Total number of buildings in DCP	Total number of unchanged buildings in DCP	Total number of demolished buildings	Total number of new buildings
18 829 049	4 296 820	3 076 850	<b>1 218 970</b>	<b>4 310 024</b>

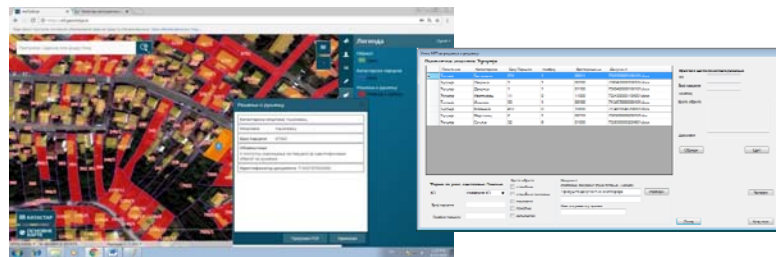
Building area [m2]	Total number of buildings in DCP	Total number of new buildings
< 5	65 371	49 585
≥ 5 < 10	133 547	208 982
≥ 10 < 20	483 233	697 700
≥ 20 < 50	1 359 379	1 502 995
≥ 50 < 100	1 403 736	1 142 673
≥ 100 < 200	668 756	603 193
≥ 200 < 300	87 757	70 585
≥ 300 < 400	32 348	17 369
≥ 400 < 500	16 551	6 676
≥ 500	46 142	10 266
Σ	4 296 820	<b>4 310 024</b>

## Evidence on buildings - further decisions

Relation: Demolished/DCP

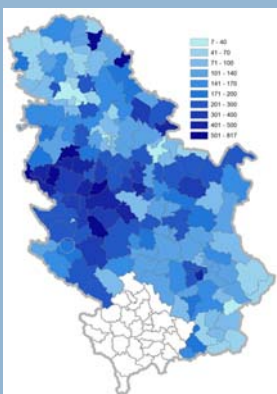


- Law on object legalization (end of 2018):
  - Article 35. – Evidence on buildings that are not registered in the REC establish and maintain authority responsible for state survey and REC;
  - Independent Article 27. – Evidence on buildings that are not registered in the REC shall be established till 01<sup>st</sup> of January 2019. and shall be available on NSDI digital platform.
- Publication on NSDI platform status on issued decisions on demolition – tool for central monitoring of legalization process.



## Evidence on buildings - further decisions

Relation: New/Unchanged



- Law on object legalization (end of 2018):
  - Article 35. – the procedure of legalization for the objects referred to in Article 6, paragraph 4, shall be initiated on the basis of the notice on its visibility on a reference satellite image issued by authority responsible for state survey and real-estate cadastre to the competent authority for the conduction of legalisation process;
  - Notice on visibility contains unique ID number of building from the Evidence, as well as unique ID number from REC related to the cadastral parcel.



## Evidence on buildings - further decisions

<http://www.rgz.gov.rs>



- **Law on object legalization Article 35.** (end of 2018):
  - The competent authority uses the Evidence of buildings to maintain the graphic base of buildings that are in the procedure of legalization, performance of supervision and monitoring the realization;
  - The competent authority maintain the evidence on started legalisation procedures, as well as on issued decisions on demolition, and publish them in electronic form on NSDI digital platform.
- Evidence will be part of Information system of REC (ISREC) and will be maintained periodically through the usage of update imagery and through maintenance of REC (for Belgrade by the end of 2020);
- The comprehensive Information system on legislation will be established based on ISREC data and data of other relevant national institutions, available to the citizens and where neither one information can not entered without prior definition of geolocation (Governmental working group to be established in 2019).

## Conclusion

Usage of geospatial data improves tenure governance since it impose :

- Implementation of new technologies for data maintenance and usage, forcing digitalization of both, data and processes;
- Updating of official spatial registries and quality improvement of its data;
- Implementation of the new policies and thinking forward!

Thank you for your attention!

<https://a3.geosrbija.rs/>

