



JRC EC Workshop: Financing the Evolution of Spatial Data Infrastructures

The role of PPP in establishing SDI



REPUBLIC
GEODETTIC AUTHORITY

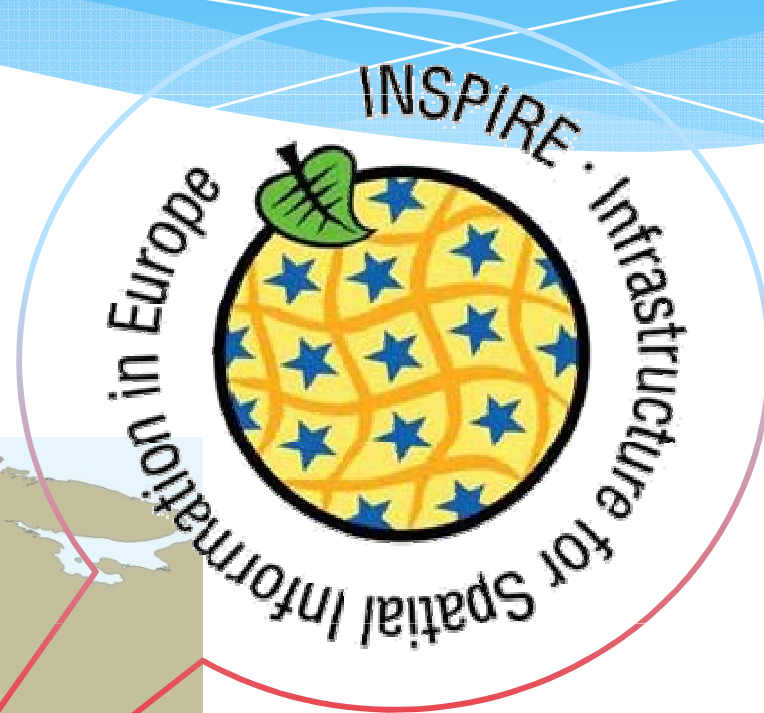
Mrs. Jelena Matic Varenica



INSPIRE Conference
Barcelona, 26th – 30th September 2016

Outline

- NSDI implementation status
- Supportive Projects/Partners
- Benefits
- Further plans/challenges



NSDI implementation status

- ✓ 2009: The **Law on State Survey and cadastre** [legal basis for NSDI establishment];
- ✓ 2009: Initial national **Geoportal** [www.geosrbija.rs];
- ✓ 2010-2011: **NSDI Bodies** [**NSDI Council + NSDI working groups**: cooperation, legal and technical framework];
- ✓ 2011: **Metadata** [Profile + Editor];
- ✓ 2012-2013: **State of play** [Survey and analysis of status within geo-sector];
- ✓ 2012: Draft of **NSDI Technical framework** and **Cooperation model documents**;
- ✓ 2014: Implemented **ISPIRE Web portal** for partners [www.geoshare.rgz.gov.rs];
- ✓ 2016: Draft of **Technical specification for new National Geoportal**;
- ✓ 2016: Draft of **RGA Strategy 2016-2020** [Component: Improvement of NSDI].

NSDI implementation status

On-going activities:

- ➔ Implementation of **Metadata Catalogue Service**;
- ➔ Drafting of the **Law on NSDI**;
- ➔ Correction of translation of **INSPIRE Directive** and **Implementing Rules for Network Services**;
- ➔ Translation of **Implementing Rules for Metadata, Data Specifications, Data and Service Sharing**;



Projects supporting SDI implementation

☑ **Statens Kartverk Twining Project** (2005-2011; ~ 2.25mil €);



*Norwegian Mapping
Authority*

- ✓ Support to Scan Centre;
- ✓ Establishing a fully operational Digital Archive;
- ✓ Assistance for establishing of NSDI:
 - **SDI Strategy of Serbia 2010-2012;**
 - **Initial national geoportal;**
 - **Metadata profile + Metadata Editor [INSPIRE + ISO 19115 + ISO19139].**

☑ **Geographic information for development and EU integration** (2011-2013; ~ 0.37mil €)

- ✓ **Development of cooperation model** between public and private sector;
- ✓ **National Geoportal is operational according to INSPIRE requirements;**
- ✓ **Introduction of the technical standards and web services** for data exchange.

Projects supporting SDI implementation

✓ **EU CARDS Progame - (2005-2010; ~ 9 mil €);**

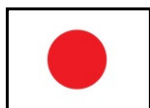


- ✓ Twining: Development capacities in digital photogrammetry;
- ✓ Technical infrastructure for data procesing;
- ✓ Project „Production of digital orthophoto for the Reublic of Serbia“.



✓ **Project for capacity development of digital National Base Mapping in Serbia**

(2009-2011; ~ 1.5mil €);



- ✓ Definition of regulations and bulding capacities;
- ✓ Establishment a **system of production of digital NBM.**



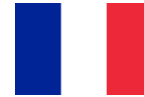
Projects supporting SDI implementation



☑ Project of establishment of NSDI and Remote Sensing Centre

for the Republic of Serbia – based on **Integrated Geo-Information Solution**

(2010-2013 + maintenance 2015; ~ 16.2 mil €);



- ✓ **Development and enhancement of capacities of national geo-sector in spatial data production** (satellite, aerial photo and LiDAR data, remote sensing, 3D vector topographic data base, map editing etc.);
- ✓ Implementation **Technical infrastructure** (processing, archiving and hosting, Central Data Repository);
- ✓ Implementation of **Web portals** (Internal: METIS, External: INSPIRE services for partners).



Projects supporting SDI implementation

✓ **INSPIRATION Project** - Spatial Data Infrastructure in the Western Balkans

(2012-2013; ~ 1.44 mil €);



- ✓ Promotion of SDI and coordination of its establishment in Western Balkans;
- ✓ Analysis of the institutional and legal framework , raising awareness and transfer of knowledge.



con•terra



✓ **IMPULS Project** (2014-2018; ~ 4.2mil €);



- ✓ Support to **technical interoperability**;
- ✓ Establishment a **system of data sharing and exchange through web services** internally and on regional level.

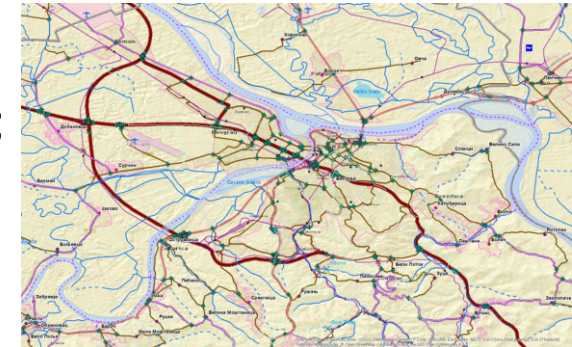


Projects supporting SDI implementation

EuroGeographics

✓ Eurogeographics Products

- ✓ EuroBoundaryMap 1:100 000 (v.5 2011)→(v.8 2014);
- ✓ EuroGlobalMap 1:1 000 000 (v5.1 2012);
- ✓ EuroRegionalMap 1: 250 000 (v6 2013) →(v.7 2014).



✓ European Location Framework (ELF) Project - (2013-2016; ~ 13 mil €);



- ✓ Harmonisation of geospatial data of NMAs;
- ✓ Generation of common technical platform for data dissemination.

✓ Cooperation within DRDSI Project (2015-2016)

- ✓ Local node for metadata relevant for EUSDR implementation.



Projects supporting SDI implementation



THE WORLD BANK

☑ **Real Estate Management Project - (2015-2020; ~ 44 mil \$);**

Objective: Improvement of efficiency, transparency, availability and reliability of real-estate management system in the Republic of Serbia.

Components:

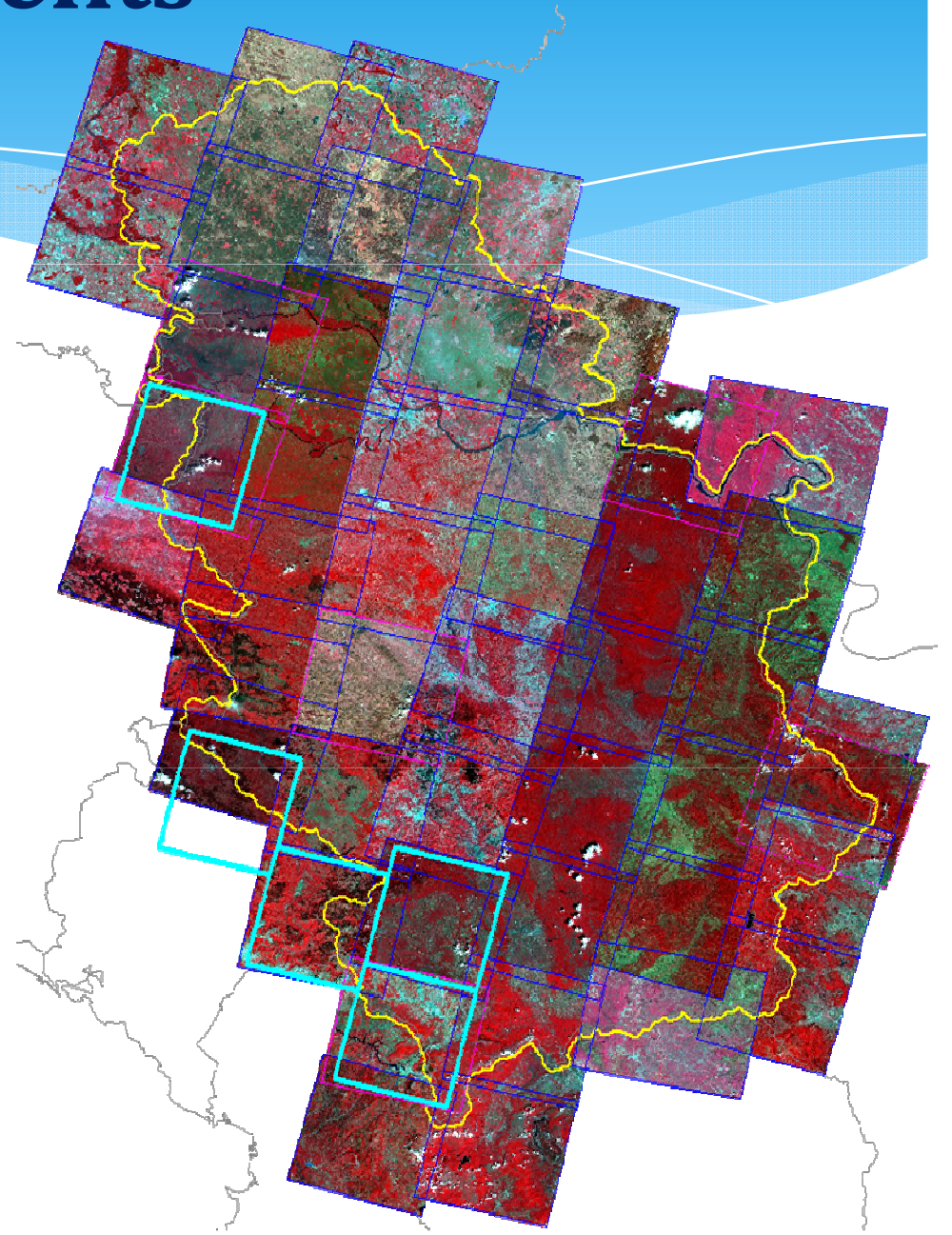
- ✓ **A:** Valuation and Property Taxation;
- ✓ **B: E-governance for Enabling Access to Real Estate Information**
 - B2: Support to NSDI (~ 0.9 mil \$)**
- ✓ **C:** Institutional development of teh RGA;
- ✓ **D:** Project management and Support Activities.



Benefits

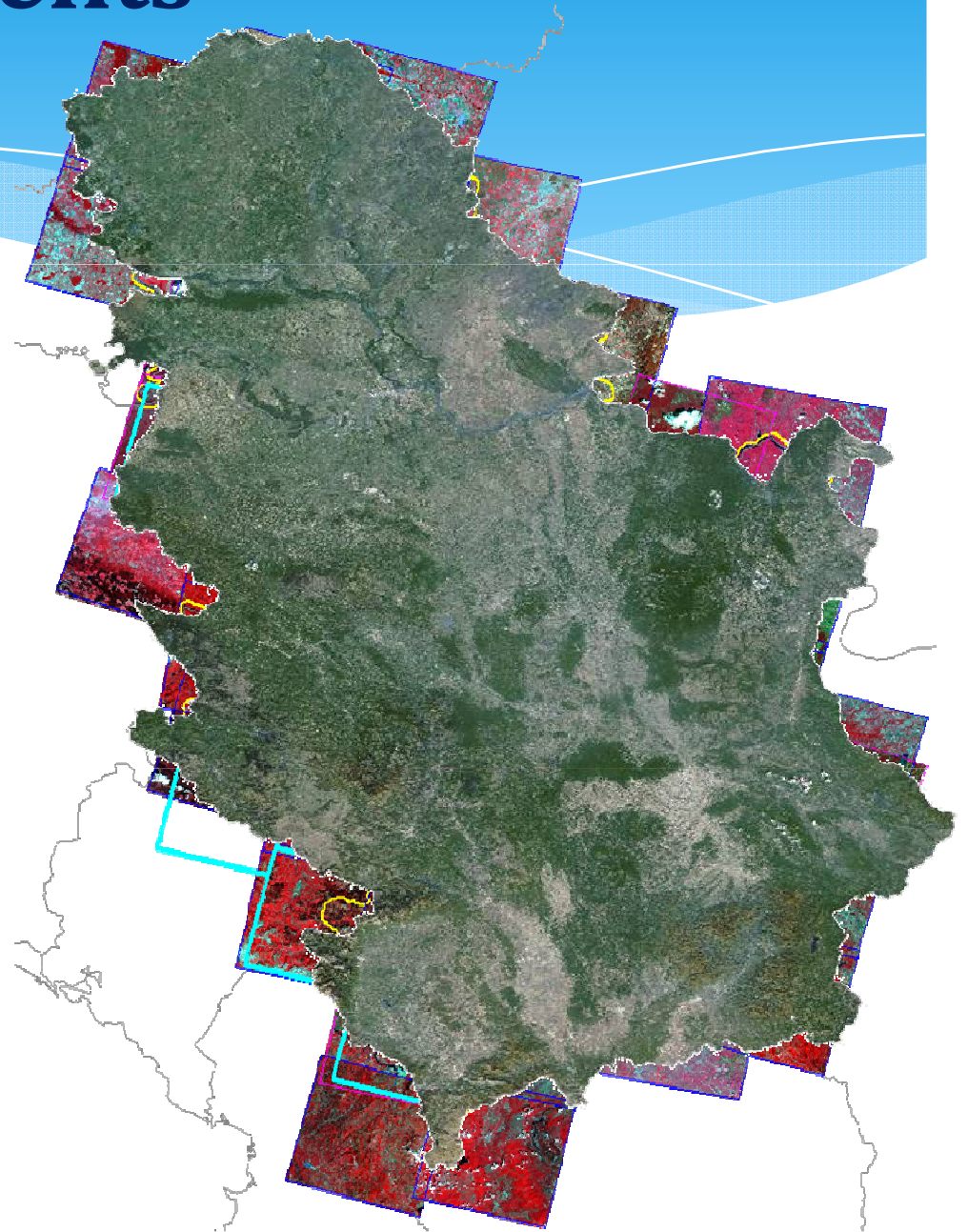
✓ **Spatial data – national coverage**

✓ **Satellite images HR and VHR
(epochs 2005-2016);**



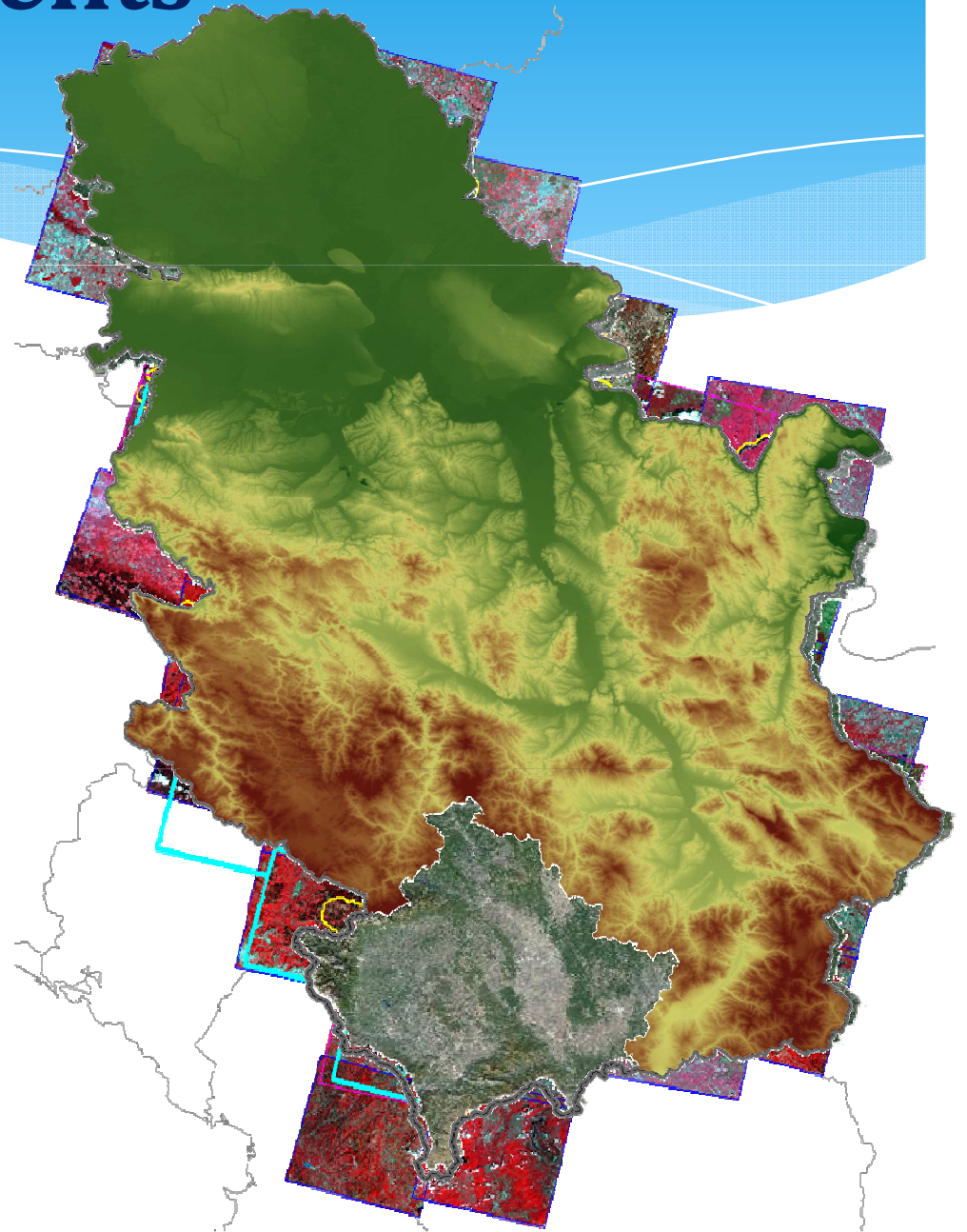
Benefits

- ✓ **Spatial data – national coverage**
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 - ✓ Digital orthophoto 40cm and 10cm GSD (epochs 2007-2016);



Benefits

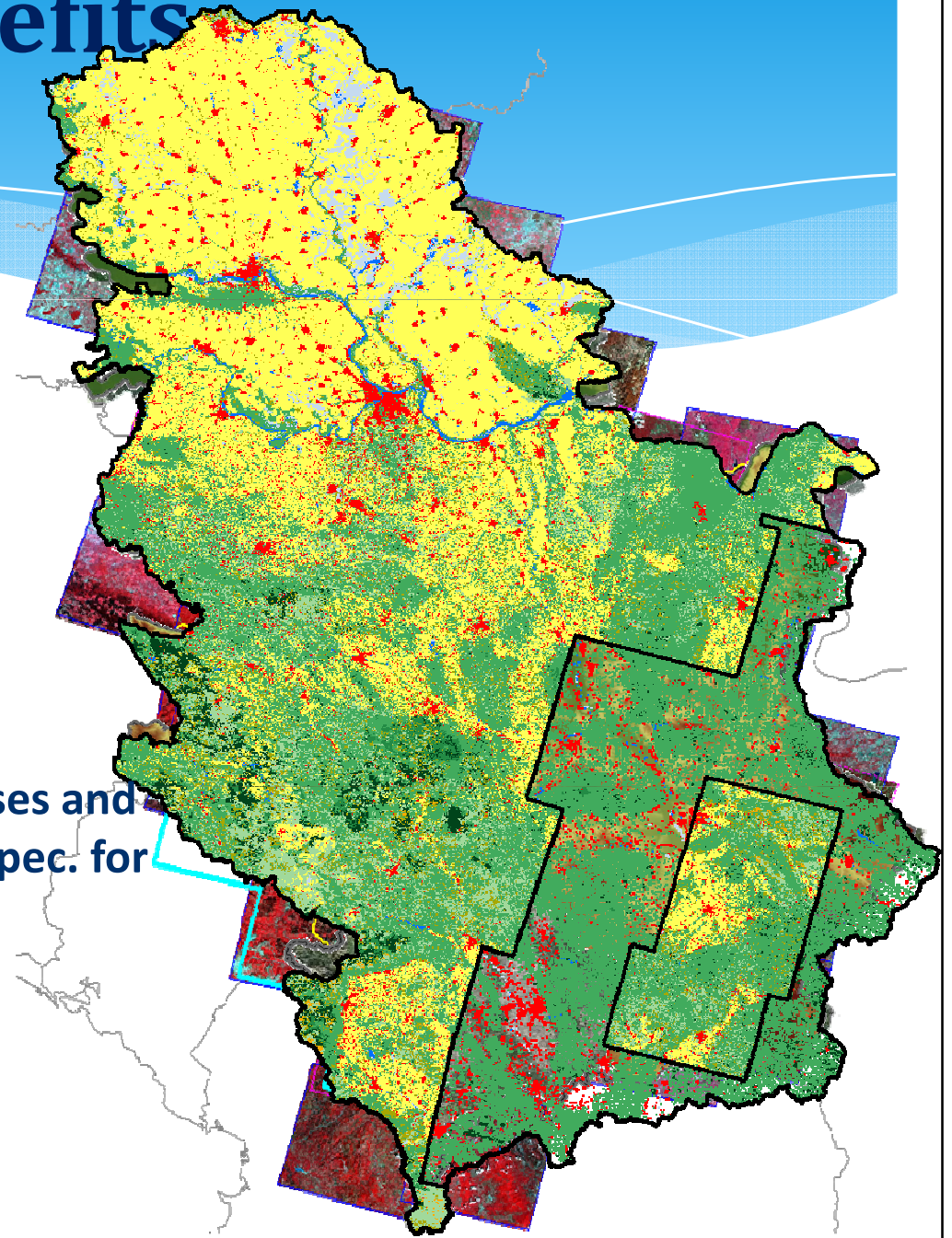
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 - ✓ Satellite images HR and VHR (epochs 2005-2016);
 - ✓ Digital orthophoto 40cm and 10cm GSD (epochs 2007-2016);
 - ✓ Digital terrain model (25m -1m grid);



Benefits

☑ Spatial data – national coverage

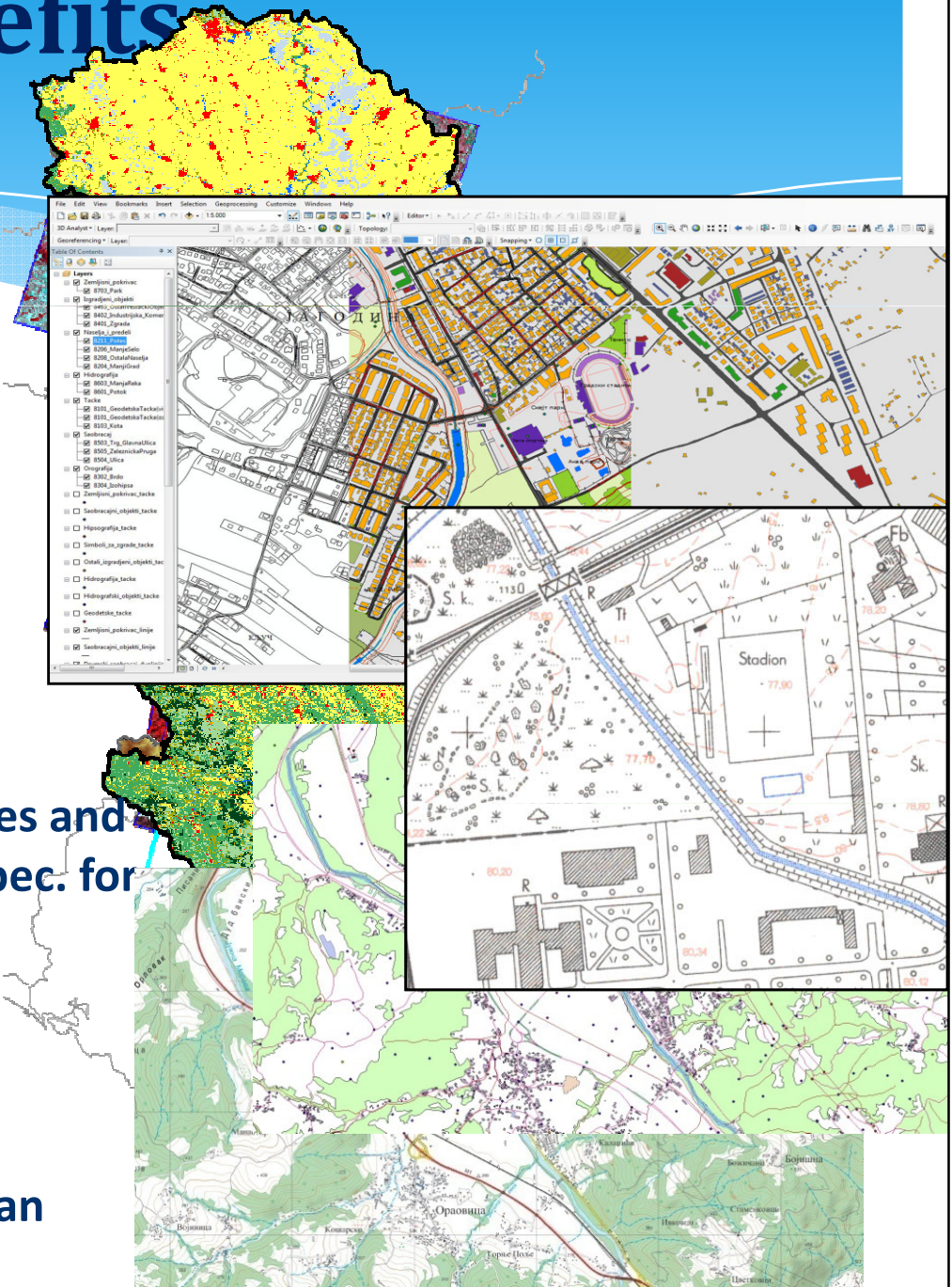
- ✓ Satellite images HR and VHR (epochs 2005-2016);
- ✓ Digital orthophoto 40cm and 10cm GSD (epochs 2007-2016);
- ✓ Digital terrain model (25m -1m grid);
- ✓ Generic Land Cover map (100% for 6 classes and 86% for 4 classes, in line with INSPIRE Teh Spec. for LC);



Benefits

✓ Spatial data – national coverage

- ✓ Satellite images HR and VHR (epochs 2005-2016);
- ✓ Digital orthophoto 40cm and 10cm GSD (epochs 2007-2016);
- ✓ Digital terrain model (25m -1m grid);
- ✓ Generic Land Cover map (100% for 6 classes and 86% for 4 classes, in line with INSPIRE Teh Spec. for LC);
- ✓ Basic Topographic Model 1: 20 000 (on-going, 15%, 6 topo-themes in line with INSPIRE data models);
- ✓ National Base Map 1:5000 (on-going ,urban areas).

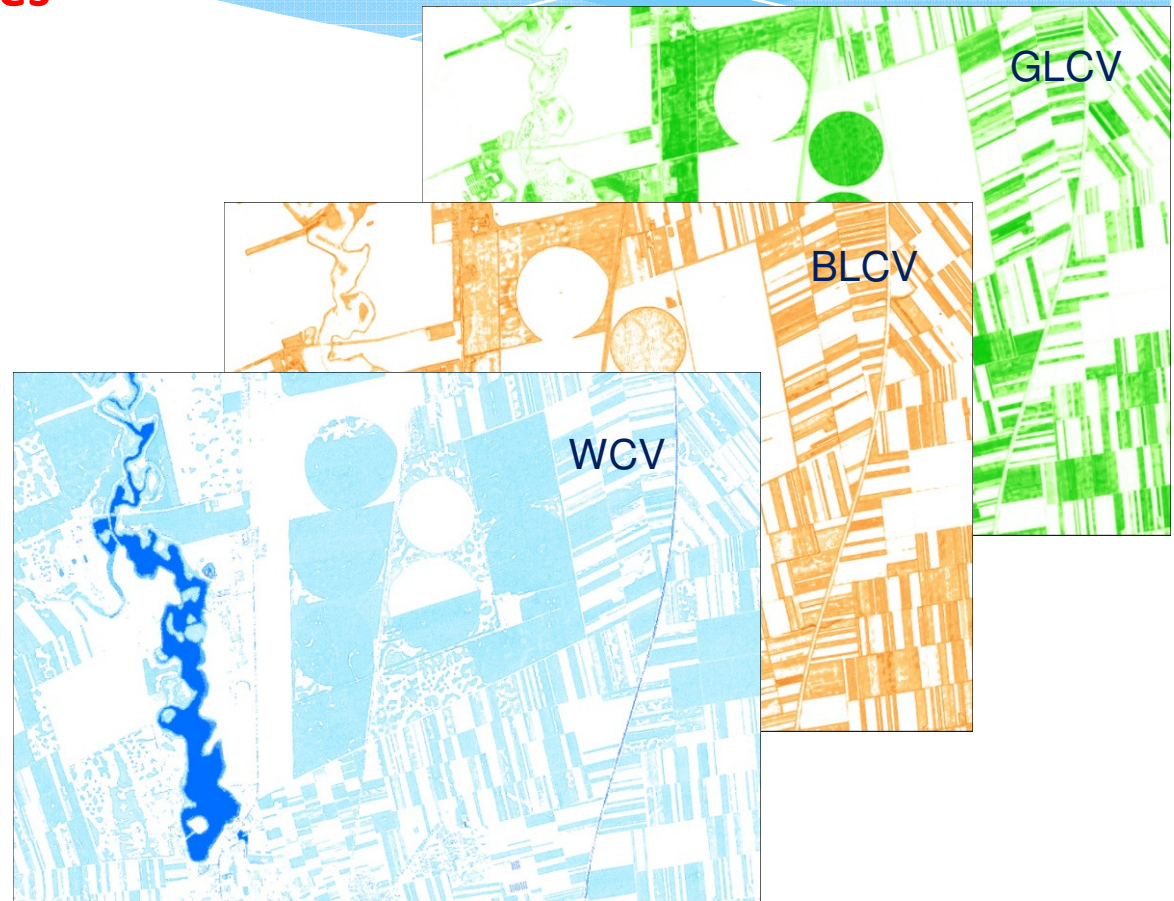


Benefits

✓ Spatial data – thematic purposes

✓ Agro – environmental maps :

- Biophysical parameters;

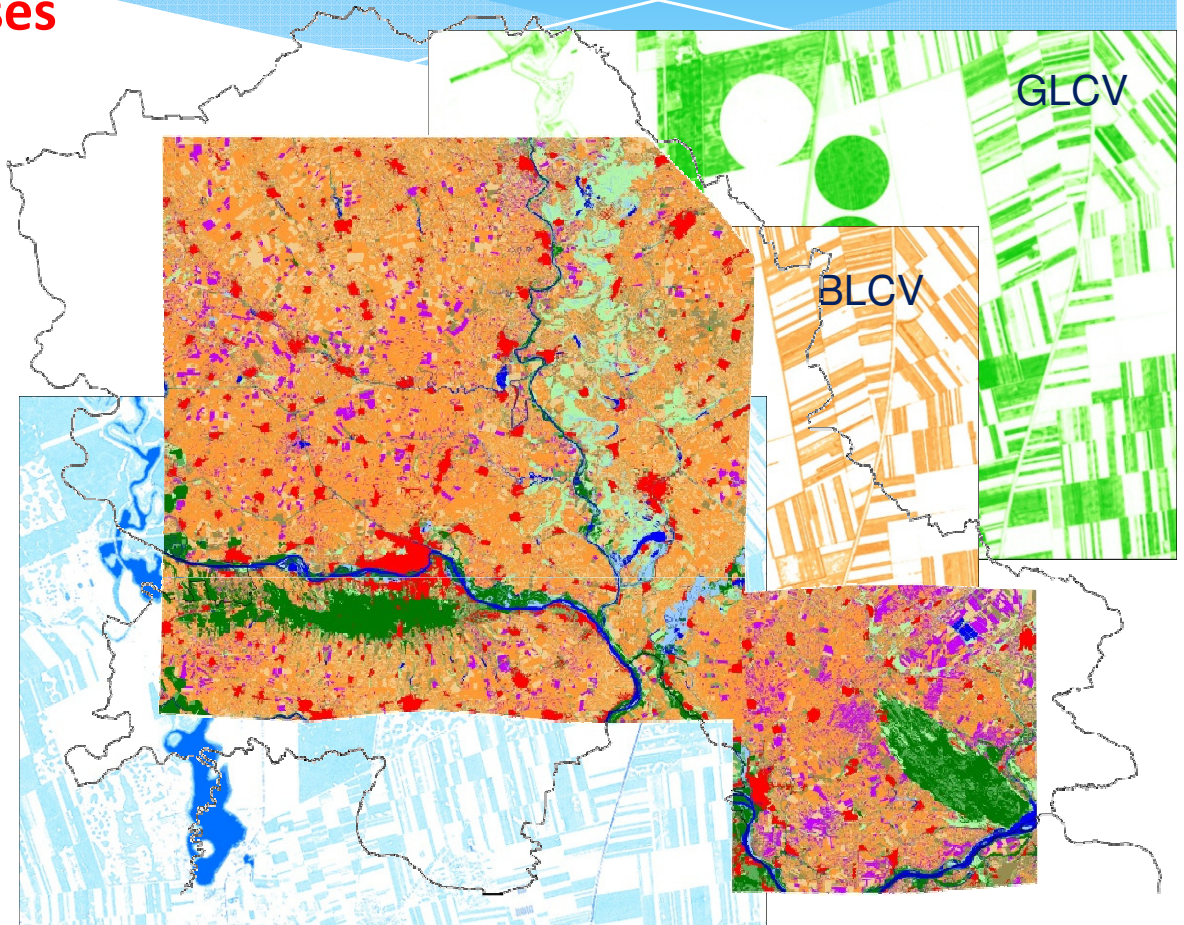


Benefits

✓ Spatial data – thematic purposes

✓ Agro – environmental maps :

- Biophysical parameters;
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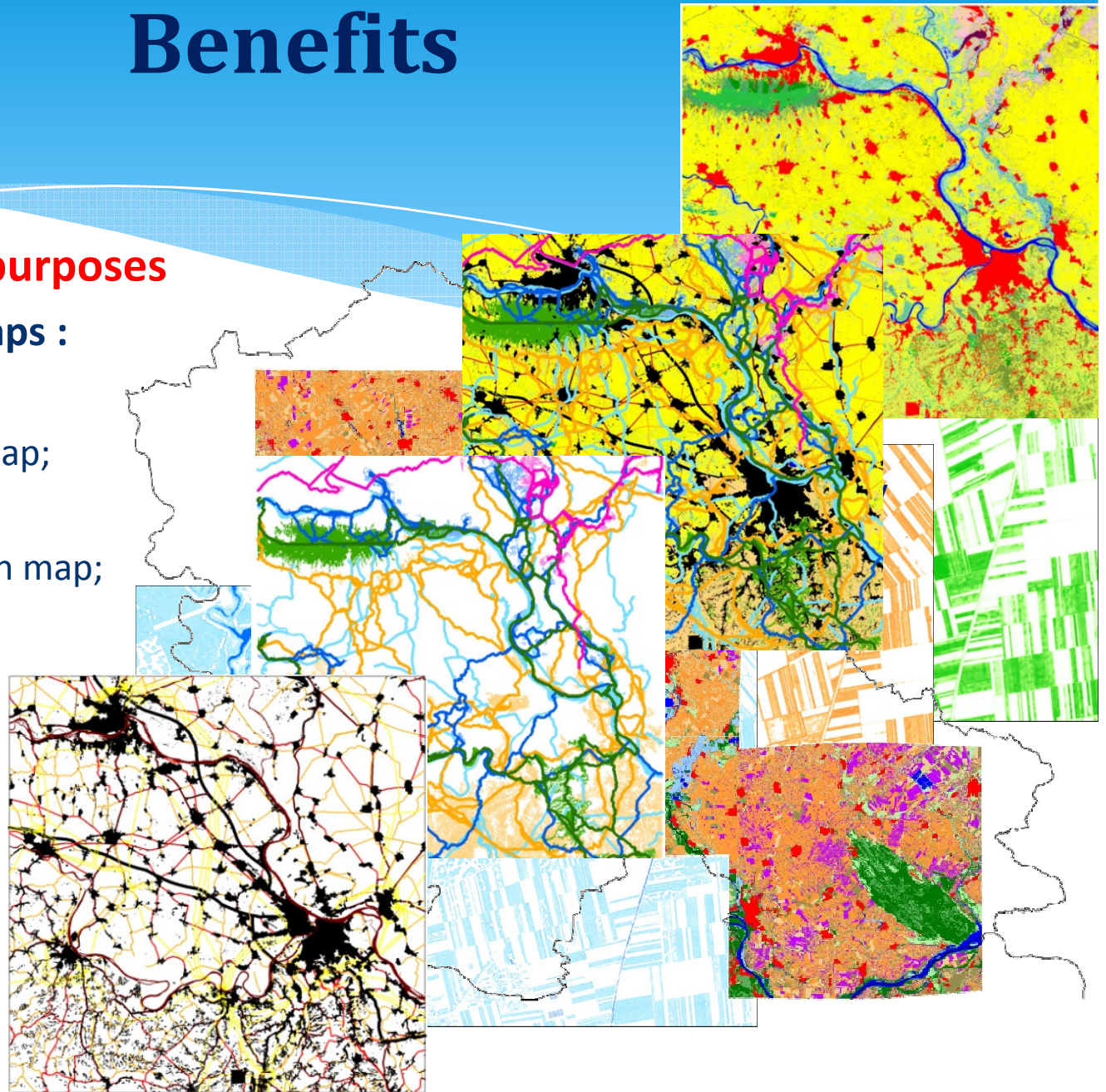


Benefits

✓ Spatial data – thematic purposes

✓ Agro – environmental maps :

- Biophysical parameters;
- Agriculture land cover map;
- Natural habitat map
- Landscape fragmentation map;
- Fragmentation map;
- Ecological network map.



Benefits

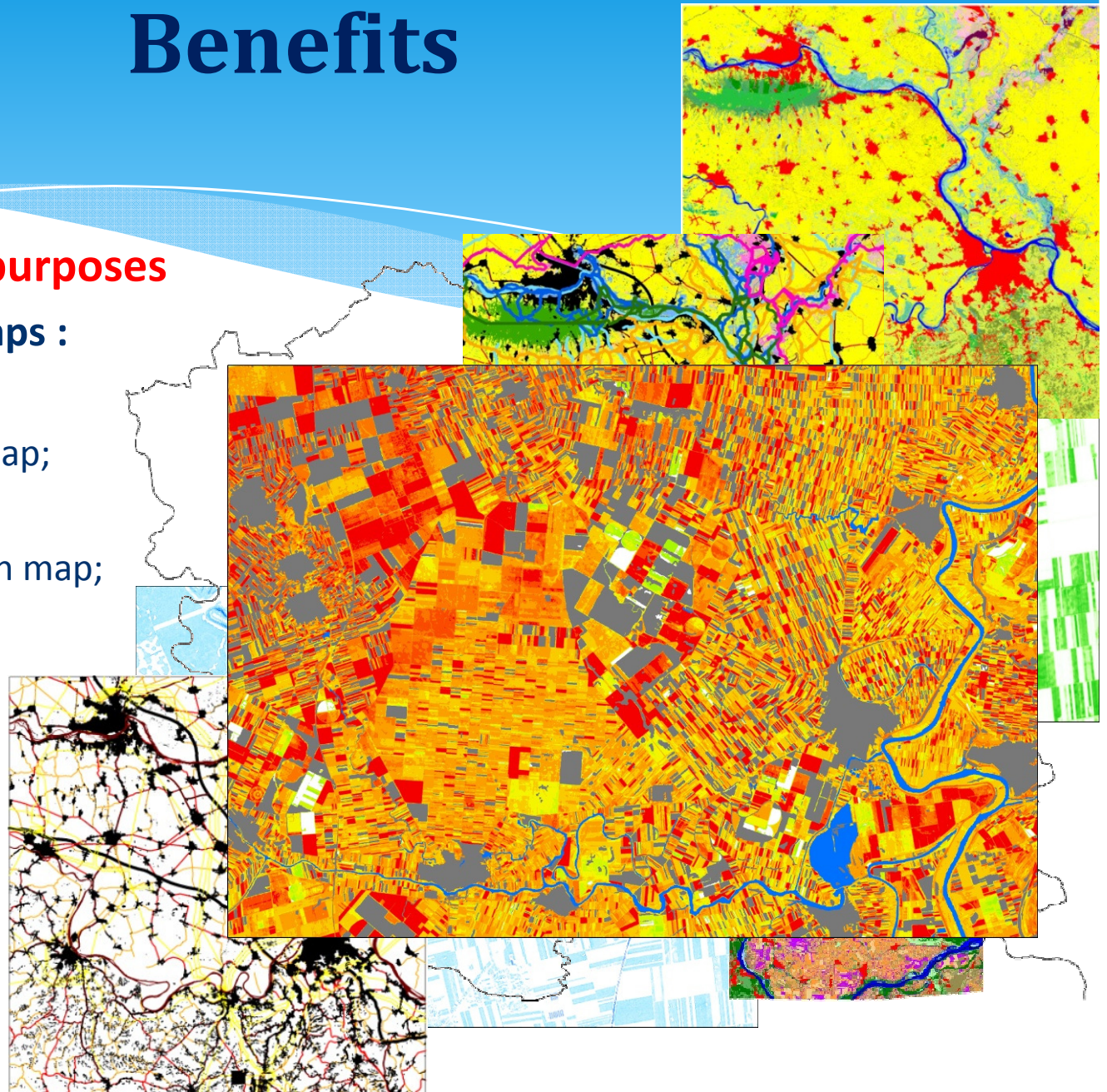
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- Biophysical parameters;
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✓ Hazard maps :

- Drought impact map;
- Flood impact map;
- Potential landslide map



Benefits

DOP, June 2009, Obrenovac

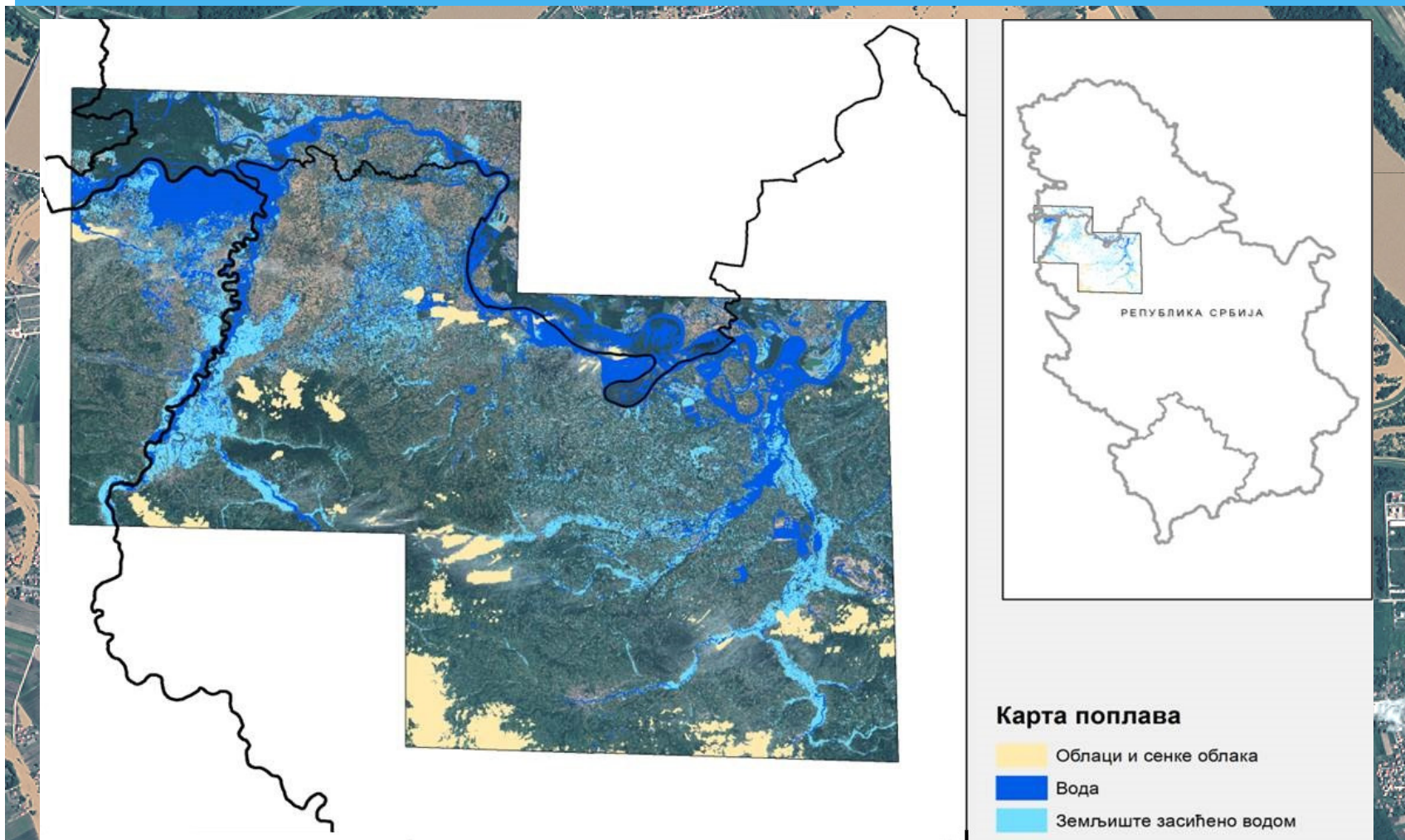


Benefits

SPOT6 19. May 2014, Obrenovac



Benefits



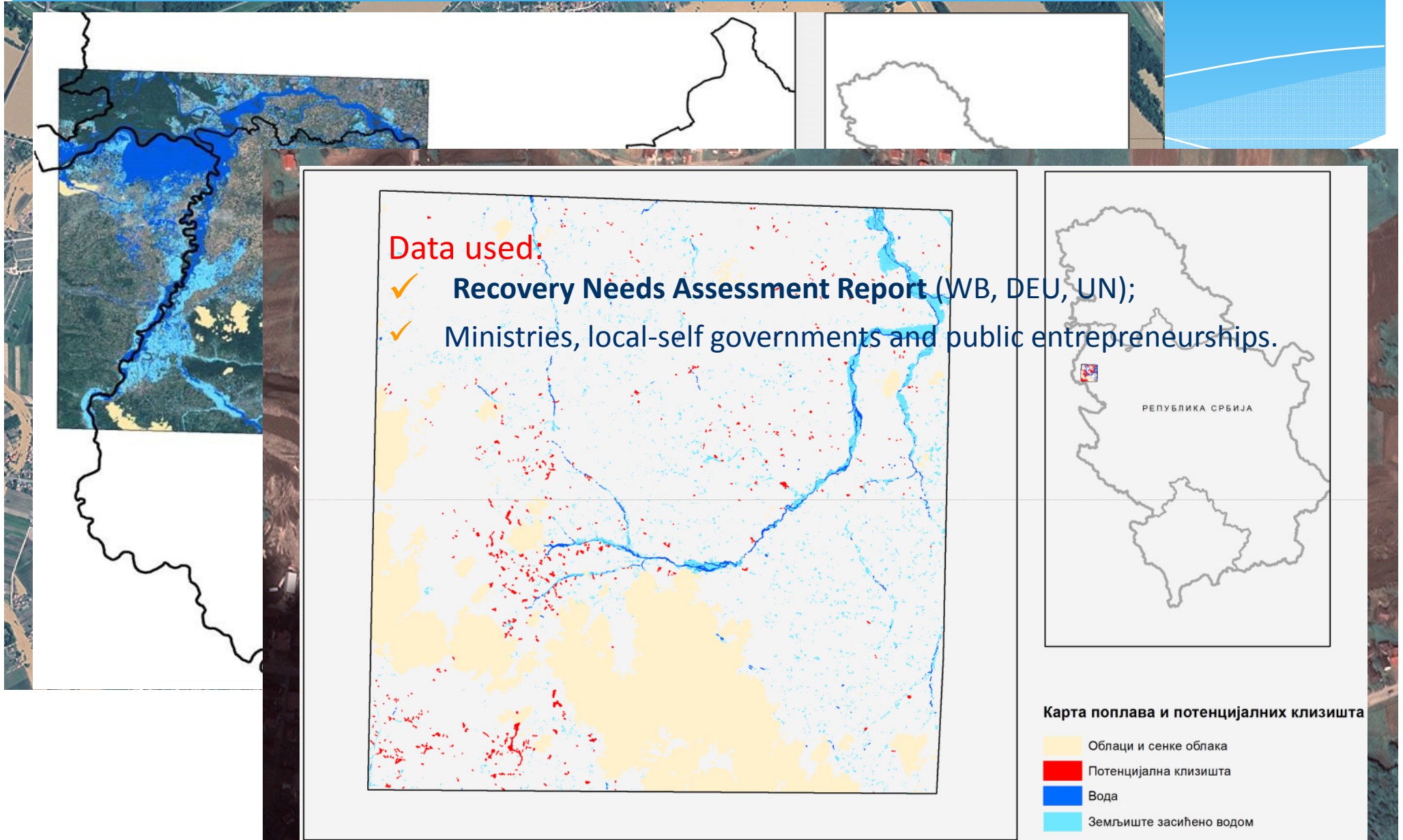
Benefits



Benefits



Benefits



Data used:

- ✓ Recovery Needs Assessment Report (WB, DEU, UN);
- ✓ Ministries, local-self governments and public entrepreneurs.

Карта поплава и потенцијалних клизишта

- Облаци и сенке облака
- Потенцијална клизишта
- Вода
- Земљиште засићено водом

Benefits

✓ Services

- ✓ Initial National Geoportal [discovery + view services];

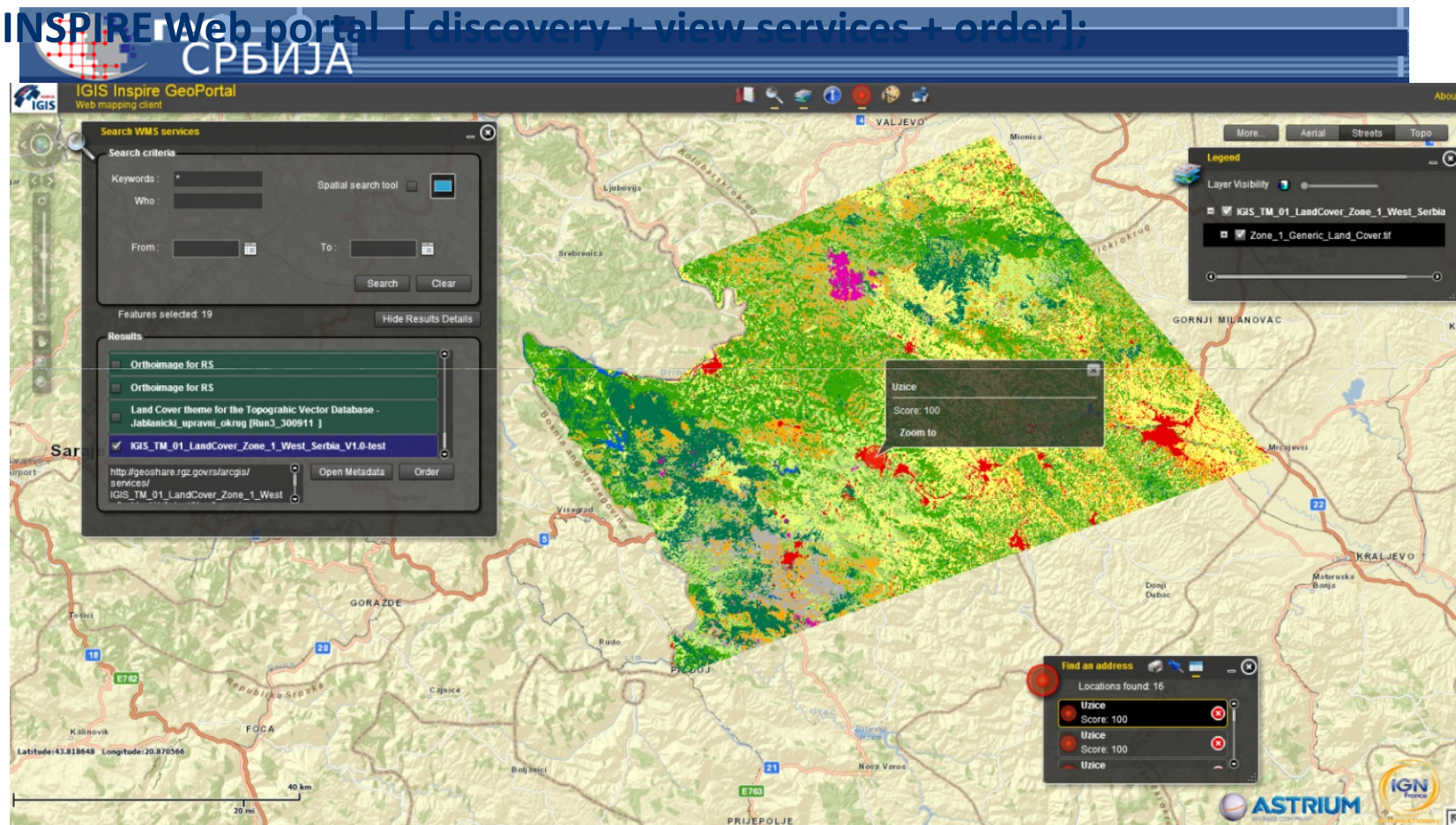
The screenshot displays the 'Иницијални геопортал' (Initial National Geoportal) interface. The header features the 'geo СРБИЈА' logo and the text 'Иницијални геопортал'. A navigation bar includes a 'Тема' (Theme) dropdown set to 'Легенда' (Legend) and a 'Мени' (Menu) dropdown. The main map area shows an aerial view of a city with a grid overlay. A sidebar on the left contains several sections: 'Прикази у размери' (Views in scale), 'Координатни референтни системи' (Coordinate reference systems), 'Административне јединице' (Administrative units), 'Статистичке јединице' (Statistical units), 'Адресе' (Addresses), 'Катастарске парцеле' (Cadastral parcels), and 'Ортофото (2)' (Aerial photos (2)). The 'Ортофото (2)' section is expanded, showing a list of aerial photos with checkboxes: 'Ортофото-10cm_(2007-2010)' (checked), 'Ортофото-20cm_(2007-2010)', 'Ортофото-40cm_(2007-2010)', and 'Ортофото-10cm_(2011-2012)' (checked). Below the map, there is a 'Висине' (Elevations) section and a 'Последња посматрања' (Last viewed) section. The bottom of the interface displays technical information: 'Гаус-Крилер зона 7 (У/Х) 7453717, 4962349', 'WGS84 (Лат/Лон) (ДММ): 44 48.2514, 20 24.5668', and 'Размера 1:1027'.

Benefits

✓ Services

✓ Initial National Geoportal [discovery + view services];

✓ INSPIRE Web portal [discovery + view services + order];



Benefits

✓ Services

- ✓ Initial National Geoportal [discovery + view services];
- ✓ INSPIRE Web portal [discovery + view services + order];
- ✓ eCADAStRE [discovery + view services <http://katastar.rgz.gov.rs/KnWebPublic/>];



www.rgz.gov.rs/KnWeb | 2.4.2013 8:25:01 | Није службена исправа

Подаци катастра непокретности

Подаци о непокретности	47a8f64a-99ab-4165-9ef9-806d94091af0
Матични број општине:	70645
Општина:	КРАГУЈЕВАЦ
Матични број катастарске општине:	745081
Катастарска општина:	КРАГУЈЕВАЦ I
Датум ажурности:	25.3.2013
Служба:	КРАГУЈЕВАЦ

1. Подаци о парцели

Потес / Улица:	МАТИЈЕ ГУБЦА
Број парцеле:	7907
Подброј парцеле:	0
Површина m ² :	395
Врста земљишта:	ГРАДСКО ГРАЂЕВИНСКО ЗЕМЉИШТЕ
Бонитет:	
Број листа непокретности:	4701
Број плана:	52
Број скице:	225
Година скице:	1991

Подаци о делу парцеле

Број дела:	1
Култура:	ЗЕМЉИШТЕ ПОД ЗГРАДОМ И ДРУГИМ ОБЈЕКТОМ
Површина m ² :	56
Број мануала:	
Година мануала:	

Имаоци права на парцели



Further plans/challenges

Institutional

- ➔ Law and by law regulations on NSDI (2016-2018);
- ➔ NSDI Strategy 2017-2021 (2017);
- ➔ NSDI Business model (financing model, pricing policy, spatial data sharing and distribution among stakeholders, licensing, cost-benefit analysis, spatial data and services access for emergencies, 2016-2017);
- ➔ Initiative for Regional center for geospatial data management (2017).
- ➔ National and Crossborder cooperation (governance, interoperability, border matching).

Data and services

- ➔ Feasibility study and Plan of „open data“ concept implementation (2017);
- ➔ Implementation of international standards for spatial information (ISO, OGC, CEN W3C and INSPIRE Implementation Rules) and data harmonization for themes under competence of RGA(RGA:2018, Serbia: 2025);
- ➔ Development of NSDI technical framework (new upgraded National Geoportal(2017-2019))

Capacities development

- ➔ Stability of human resource and its development;
- ➔ Development of the ICT sector within RGA
(update of strategy, business model, services, trainings, 2015-2020).



Conclusion?



Thank you for your attention!