

WB/FAO/UNECE/JRC EC WORKSHOP:

DATA DRIVEN ECONOMY IN CENTRAL AND EASTERN EUROPE.
CHALLENGES AND PERSPECTIVES



Initiatives within NSDI for boosting economy



REPUBLIC GEODETIC AUTHORITY
WWW.RGZ.GOV.RS



INSPIRE CONFERENCE 2017

KEHL/STRASBOURG , 04TH - 08TH SEPTEMBER 2017

Significance of Geospatial Information

I
(Acts adopted under the EC Treaty/Euratom Treaty whose publication is obligatory)

DIRECTIVES

DIRECTIVE 2007/2/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 14 March 2007
establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)

THE EUROPEAN PARLIAMENT
EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 177,

Having regard to the proposal from the Commission,

Having regard to the opinion of the Economic and Social Committee,

After consulting the Committee of the Regions,

Acting in accordance with the procedure laid down in Article 177 of the Treaty, in the light of the Conciliation Committee on 17

Whereas:

(1) Community policy on the level of protection taking into account the various situations in the various Member States; moreover, information, in particular, is needed for the formulation of a common policy and other Community environmental protection; Article 6 of the Treaty;

(2) OJ C 221, 8.9.2005, p. 33.
(3) Opinion of the European Parliament of 25.5.2006, p. 116; Council Directive 2006/126/EC of 12 December 2006, published in the Official Journal of the European Union of 13 June 2006.

United Nations



General Assembly

Seventieth session
Agenda items 15 and 116

Resolution adopted by the General Assembly on 25 September 2015

[without reference to a Main Committee (A/70/L.1)]

70/1. Transforming our world: the 2030 Agenda for Sustainable Development

The General Assembly

Adopts the following outcome document of the post-2015 development agenda:

Transforming our world: the 2030 Agenda for Sustainable Development

Preamble

This Agenda is a plan of action to strengthen universal peace in all its forms and address the global challenge and an indispensable

All countries and all stakeholders implement this plan. We are resolve poverty and want and to heal and a bold and transformative steps which sustainable and resilient path. As we that no one will be left behind.

The 17 Sustainable Development Goals announced today demonstrate the progress they seek to build on the Millennium did not achieve. They seek to realize equality and the empowerment of indivisible and balance the three economic, social and environmental.

The Goals and targets will be of critical importance for humanity and

A/RES/70/1

Dist. : General
21 October 2015

Addis Ababa Declaration Geospatial Information Management Towards Good Land Governance for the 2030 Agenda

We, the participants of the Fourth High Level Forum on UN Global Geospatial Information Management held in Addis Ababa, Ethiopia, from 20 to 22 April 2016, having met in the context of United Nations initiatives to enhance cooperation in geospatial information management to address global land governance and sustainable development challenges, hereby issue this Addis Ababa Declaration on Geospatial Information Management Towards Good Land Governance for the 2030 Agenda.

We therefore resolve to:

- affirm the importance of good land administration and management as the pillar of good governance and efficient government to address the challenges and opportunities for the 2030 Agenda, specifically within the framework of the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security and supporting the development of fit-for-purpose land administration and geospatial information, particularly in developing countries;
- confirm that authoritative and up-to-date geospatial information that are consistently available and accessible over space and time underpins good land administration and management, leading to good land governance and sustainable development, cognizance of both formal and informal people-to-land relationships;
- advocate to political decision makers the importance of geospatial and land information in the context of the 2030 Agenda for Sustainable Development and the 2063 African Union Agenda as a collective vision and roadmap to secure land and property rights for all;
- commit to realize, measure and report progress to document, record and recognize people-to-land relationships in all its forms globally, and sustain partnerships and joint actions with UN entities, including UNECA, FAO, UN-Habitat/GLTN and the World Bank, involved in the monitoring and reporting on land SDG indicators;
- promote cooperation between and among all UN-GGIM regional committees in setting up global frameworks, common standards and application of best practices in geospatial information management, and also collaboration in the implementation of UN-GGIM regional action plans for achieving good and sustainable land governance.



SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD



The need for Geoinformation in Serbia



Results of the questionnaires conducted in 2015/2016:

Question	% of positive answers	Answer	% of answers
Daily usage of GIS?	56	Specific analysis and reports	39
Obstacles in usage of spatial data and/or GIS?		<ul style="list-style-type: none"> • No data; • Unqualified staff; • No IT capacity. 	<ul style="list-style-type: none"> • 85 • 61 • 60
Provision of spatial data?		<ul style="list-style-type: none"> • From other gov. org. free of charge; • Own production; • Development projects; • Purchase. 	<ul style="list-style-type: none"> • 84 • 61 • 50 • 26
Distribution of spatial data?		<ul style="list-style-type: none"> • Direct-physically; • Web service. 	<ul style="list-style-type: none"> • 76 • 32
Users of spatial data?		<ul style="list-style-type: none"> • Data producers - internally; • Governmental institutions; • Citizens; • Scientific –educational institutions and private organizations. 	<ul style="list-style-type: none"> • 84 • 66 • 65 • 35
Provision of reference spatial data based on „Open Data“ concept?	100	Participation in co-financing	63
Necessity of a national institution that provides data and services and coordinates the development of public sector capacities?	100		100

Assessment of the NSDI implementation



Food and Agriculture Organization of the United Nations



THE WORLD BANK

Core Data I
(DOP, adm. units, addresses, cadastral parcels, elevation., geographical names...)

Core Data II
(stat. units, buildings, land cover, utilities...)

Use of NSDI/Applications

Capacity Development

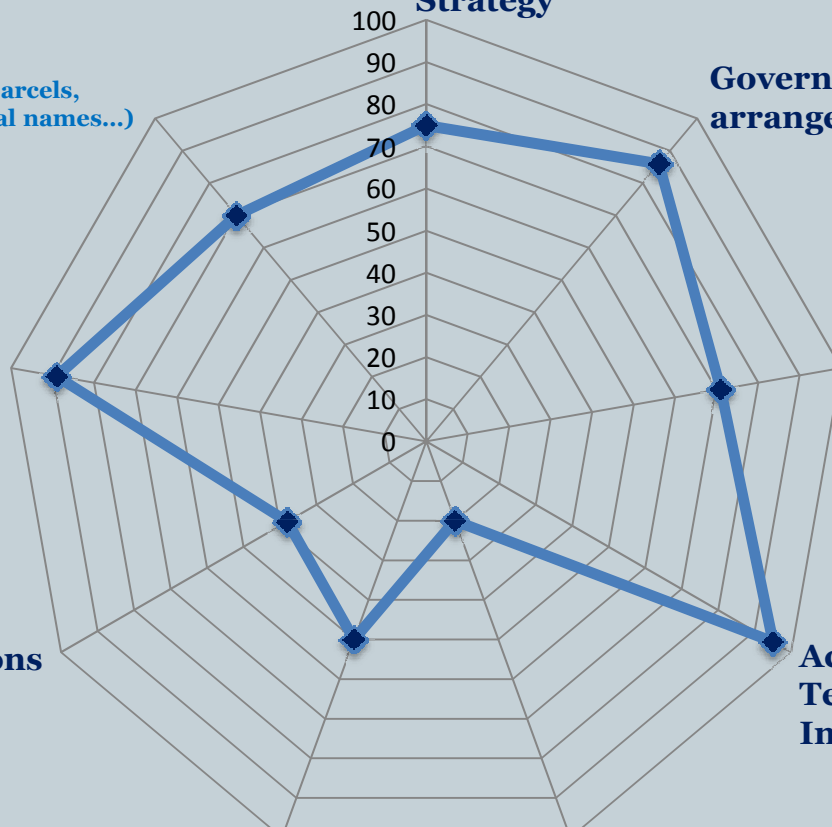
Policy and Strategy

Governance arrangements

Legal framework

Accessibility and Technical Infrastructure

Socio-Economic impact



NSDI Diagnostic Tool: Indicator Scorecard - Republic Serbia

Policy & Strategy	Score
1.1. Does the NSDI policy and strategy exist?	100
1.2. Is there a NSDI policy and strategy Monitoring and Evaluation Framework?	100
1.3. Is the NSDI aligned to high-level Government information policies?	100
1.4. Is there a NSDI Engagement strategy?	100
1.5. Is there a NSDI to make general and sector data accessible through "Open Data"?	100
Policy & Strategy: Average Score	100

Government arrangements	Score
2.1. Is there a NSDI "champion" in Government?	100
2.2. Is there a NSDI Coordinating body?	100
2.3. Is the NSDI Coordinating body represented at sector - top level in government?	100
2.4. Is the coordinating body responsible for developing a Government - Open Data - based data governance policy?	100
2.5. Does the NSDI Coordinating body consist of multiple levels of administration - national - regional - local - public sector?	100
2.6. Are there working Groups supporting NSDI development at national, regional, local or sectoral level?	100
2.7. Is there a user group - forum available for consultation and providing user feedback - request?	100
2.8. Are there established link between NSDI and National Development Plans?	100
2.9. Is there any form of support to long NSDI initiatives?	100
2.10. Are there established public sector data access coordination processes that is the NSDI (if any)?	100
2.11. Can the public sector access geographical data and services be used in more than one language? - where applicable	100
Government Arrangements: Average Score	100

Legal framework	Score
3.1. Is there a NSDI Law in regulation?	100
3.2. Is there a data sharing law - regulation?	100
3.3. Is there a data licensing law - regulation?	100
3.4. Is there any protection of Intellectual Property - data protection legislation?	100
3.5. Is there a copyright legislation - regulation?	100
Legal framework: Average Score	100

Accessibility and Technical Infrastructure	Score
4.1. Is there an established business model for NSDI?	100
4.2. Is there a business model supported by a 3rd - business not necessarily using NSDI?	100
4.3. Is there a business model supported by a 4th - the government itself?	100
4.4. Is there a business model supported by a 5th - the private sector?	100
Accessibility & Technical Infrastructure	100

Socio-economic impact	Score
5.1. Does a national business model for NSDI exist?	100
5.2. Is there a business model supported by a 3rd - business not necessarily using NSDI?	100
5.3. Is there a business model supported by a 4th - the government itself?	100
5.4. Is there a business model supported by a 5th - the private sector?	100
Socio-economic: Average Score	100

NSDI Diagnostic Tool National Report

SERBIA - OVERALL SCORE = 74

Interview: 18th January 2017
 Date:
 Location: Audio interview with Republic Geodetic Administration of Republic of Serbia
 Interviewed: Jelena Matic-Tamack, Assistant director of Sector for Topography and Cartography and Dejan Vasic, Head of Department for NSDI and GIS data, Professional business support for NSDI
 Interviewees: Ruzica Todorovic, Senior Land Administration Officer, FAO of the UN

SUMMARY
 This is the first testing of the NSDI diagnostic tool. It followed the creation of an initial draft version of the indicators in November 2016, a period of intensive discussion and review within the UN Land and Geospatial team, and then further discussion with external parties that had experience of similar evaluation activities. The UN/FAO team members already had a good understanding of the development of NSDI in Serbia and this provided a good opportunity to test the assessment findings in a known environment. Consequently, the scorecard delivered the findings expected, but with objectivity, clarity and metrics to present relative strengths and weaknesses.

The diagnostic tool was relatively easy to use, although there was some discussion over definitions and the interpretation of coverage - this all proved to be valuable in refining the indicators and the scoring methodology. The main user saw the 2 hours to complete, followed up by several minutes to manually collect some additional information. This was provided by a day of preparation and 2-3 days of follow-up, feedback, clarification, and for the final report. The resulting overall score, and individual component scores, all reflected the situation as reported, but with clear metrics, and this was confirmed by feedback from Serbian NSDI specialists. This report also provides a brief overview of the geospatial data availability - and identifies shortfalls in the existing data coverage, and datasets required by policy decisions and/or based decision-making to support government policy.

In the case of Serbia the NSDI has come along way - those involved should be congratulated for the work done and the achievements to date. This diagnostic tool has re-emphasized that view, but also shines a light on areas that still require more work, and which can be targeted in the near future in order to maximize the possibility of achieving the full benefits of NSDI.

INTRODUCTION
1. Brief country description
 The global financial crisis exposed the structural weaknesses in Serbia's economic growth model and prompted the need for fundamental reconsideration and acceleration of the institutional transition to a market economy. The rapid growth experienced by Serbia during 2001-08 was driven mainly by domestic consumption and led to significant internal and external imbalances that proved to be unsustainable. Following the cessation of block price and sector subsidies in early 2010, a reform-minded government was formed, giving Serbia a new opportunity to reassess the past fragmentation and build momentum for reform. The new Government is committed to focusing on strengthening the state administration, public finances, and the economy along with pursuing the European Union (EU) accession process. The economic program for 2011-15 focuses on restoring economic and financial

RGA Strategy 2016-2020



СТРАТЕГИЈА
МЕРА И АКТИВНОСТИ ("РЕФОРМСКИ ПУТ РГЗ-А") ЗА ПОВЕЋАЊЕ КВАЛИТЕТА УСЛУГА
У ОБЛАСТИ ГЕОПРОСТОРНИХ ПОДАТАКА И УПИСА ПРАВА НА НЕПОКРЕТНОСТИМА У
ЗВАНИЧНОЈ ДРЖАВНОЈ ЕВИДЕНЦИЈИ

РЕПУБЛИЧКОГ ГЕОДЕТСКОГ ЗАВОДА
за период од 2016. до 2020. године

Београд, јануар 2017.

- **Aims:**
 - ✓ Efficient system of real-estate and utility registration and related ownership rights;
 - ✓ Advanced NSDI;
 - ✓ Improved quality and reliability of reference spatial data and its maintenance;
 - ✓ Established system of real-estate mass valuation;
 - ✓ Integration into the e-Government;
 - ✓ Available services to vulnerable population groups;
 - ✓ Upgraded organisational and HR structure.

The **overall goal** - **support the economic reform** of the Government by effective provision of information in the sphere of real-estate and geospatial related activities for the **fast, easy and rightful decision-making at all strategic levels.**

Initiative for establishment of CoE for Management of Geospatial Information



- Support from the UN FAO , World Bank and leading companies and research centers;



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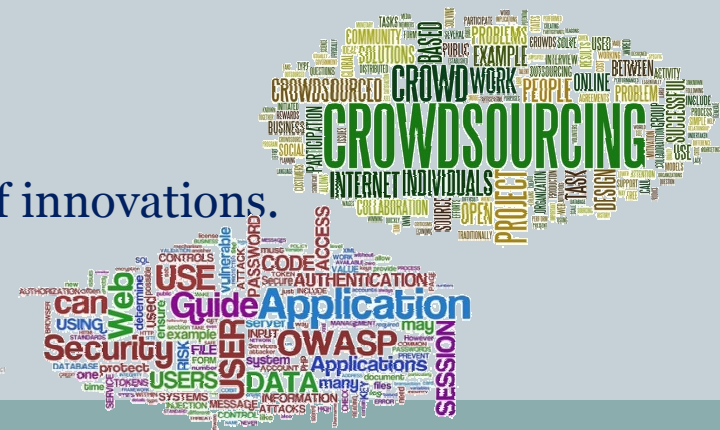
- Role of the CoE:

- ✓ Ensure advancement of NSDI so that quality geospatial data are available for use according to defined standards satisfying public policy requirements;
- ✓ Coordinate policy and operational activities in specific economic and social areas and ensure institutional cooperation at the national, regional and international level and promote Euro-integration in its area of operation;
- ✓ Assist in improving of national directives and internal regulations and create a better business environment for the public and private sector and citizens through the definition of improved working procedures;
- ✓ Help in education of stakeholders at all levels with a focus on implementation of new technological solutions, research and application demonstrating the possibilities of applying geospatial data and evolving methodologies based on that.

Roadmap of CoE for Management of Geospatial Information 2016-2020



- ✓ Development of a strategic approach in the use of geospatial data at the national level;
- ✓ Raising awareness of the importance of using geospatial information and defining the concept of geospatial data managing;
- ✓ Establishment of the CoE through: adoption of regulations on organizational and personnel structure, defining the medium-term development plan and establishing of operational capacities (technical and human);
- ✓ Transfer of knowledge to relevant institutions;
- ✓ Development of applications and services;
- ✓ Embedding of geospatial data into business processes;
- ✓ Continuous development, research and introduction of innovations.



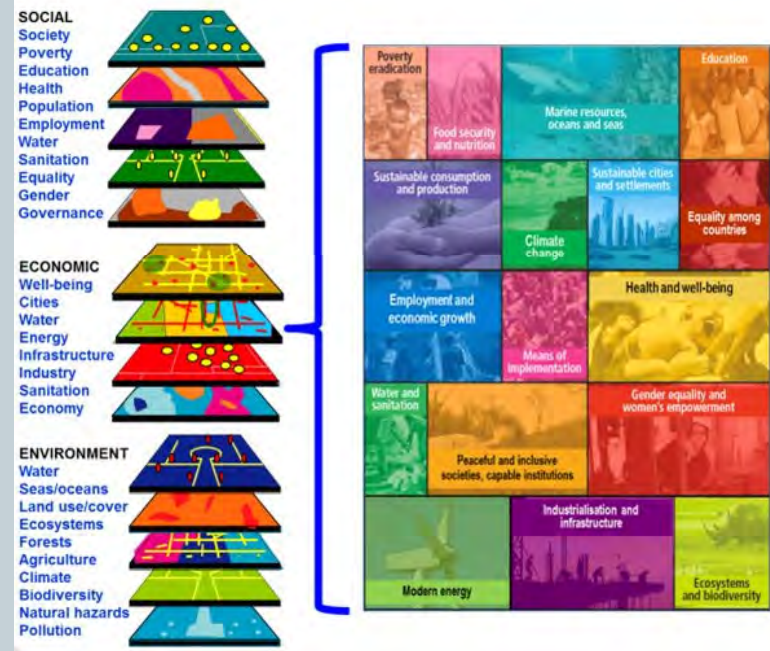
Objectives of CoE for Management of Geospatial Information



- ✓ **Balanced needs and Minimum risk and cost exposure** of public sector;
- ✓ **Coordinated and efficient provision of development, services and data** required by the users/market;
- ✓ **Achieved economic and social benefits** of society.



- ✓ Increase in **economic productivity and social stability** of the country;
- ✓ **Preserving the environment and natural resources**;
- ✓ **Protection of life and health of citizens** and their property from natural disasters and other hazards with strong capacity for reaction and recovery.



Initiative for new data driven applications



Risk management



Obrenovac, 2009



Krupanj, 2009

- ✓ **Recovery Needs Assessment Report** (WB, DEU, UN);
- ✓ Ministries, local-self governments and public entrepreneurships – **Data use and reuse;**
- ✓ **Support to national development projects** (Upgrading of Water management system, National Risk assessment, Resilience to climate changes in transport and agriculture etc.)

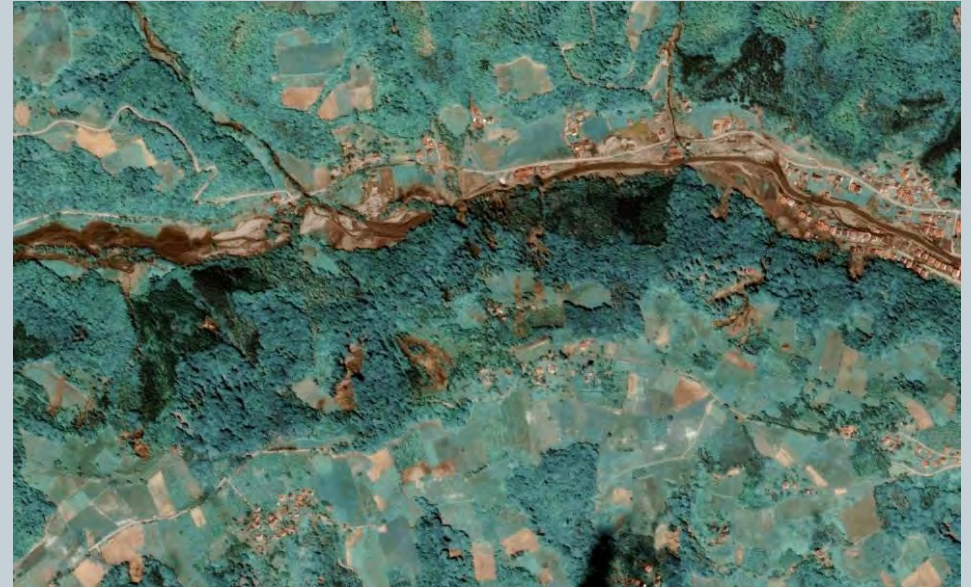
Initiative for new data driven applications



Risk management



Obrenovac, 2014

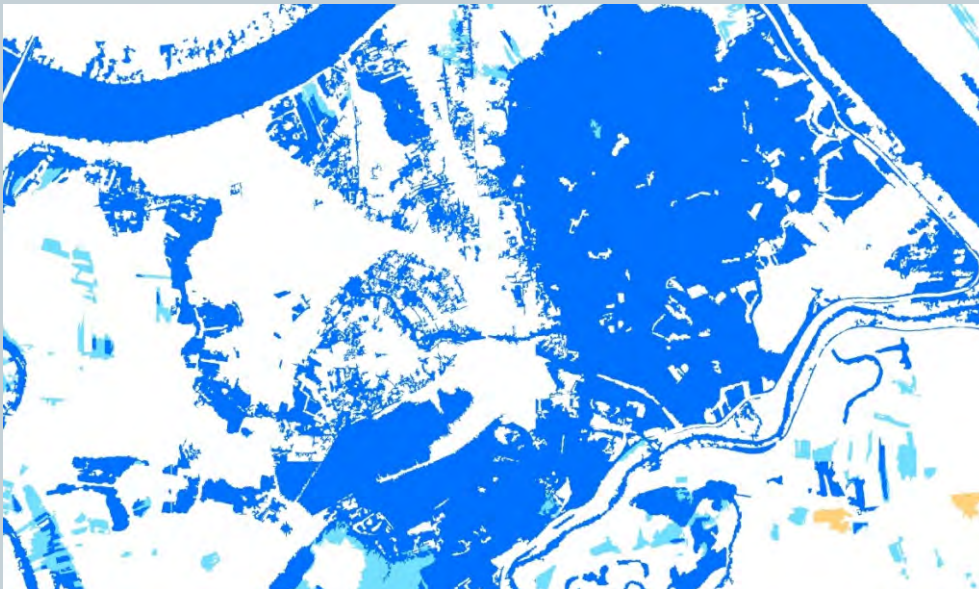


Krupanj, 2014

- ✓ **Recovery Needs Assessment Report** (WB, DEU, UN);
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Initiative for new data driven applications

Risk management



Flood Maps

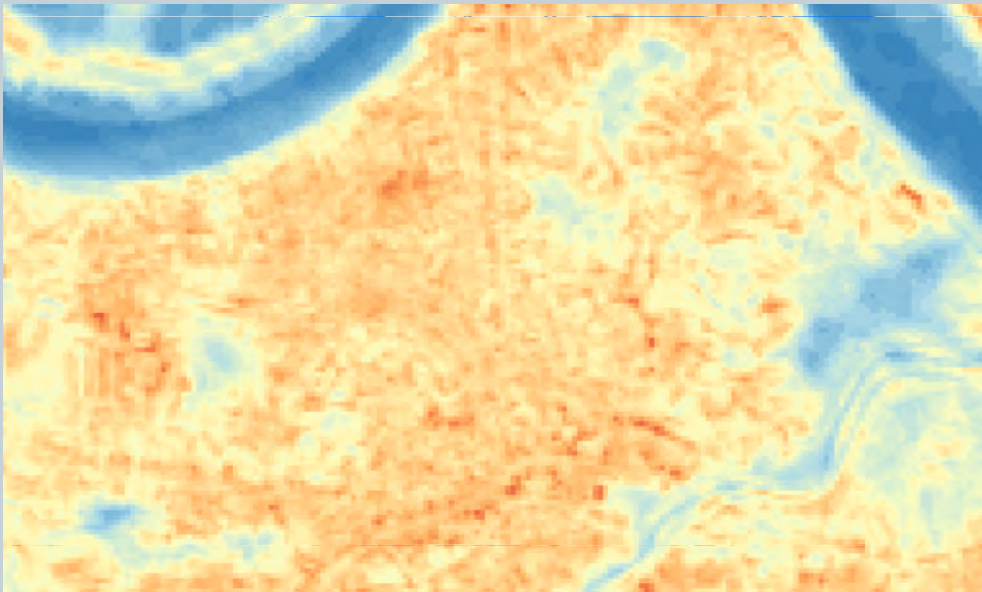


Flood and Landslide Map

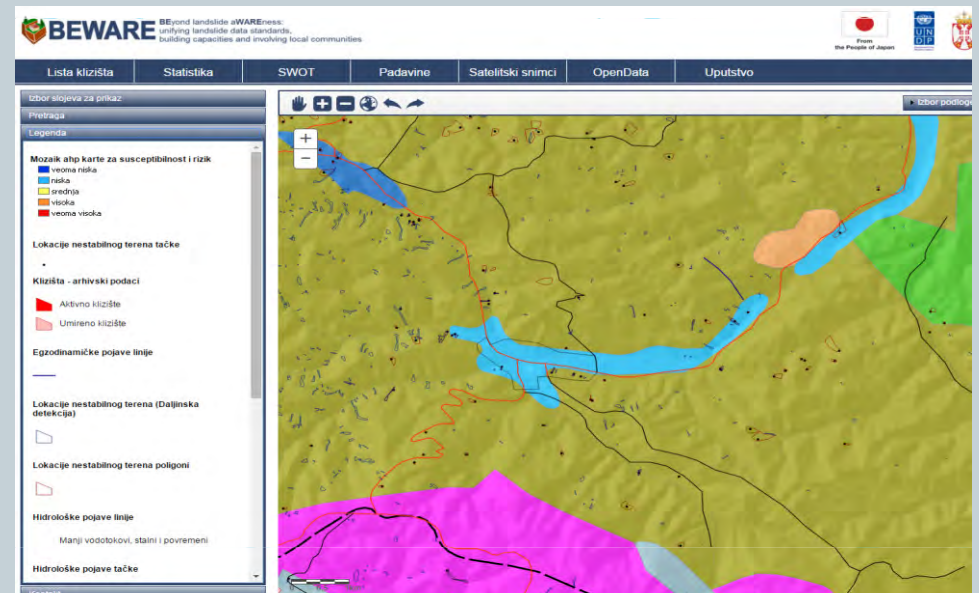
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Initiative for new data driven applications

Risk management



Soil Moisture Index Map



Landslide Inventory

- ✓ **Recovery Needs Assessment Report** (WB, DEU, UN);
- ✓ Ministries, local-self governments and public entrepreneurships – **Data use and reuse;**
- ✓ **Support to national development projects** (Upgrading of Water management system, National Risk assessment, Resilience to climate changes in transport and agriculture etc.)

Initiative for new data driven applications

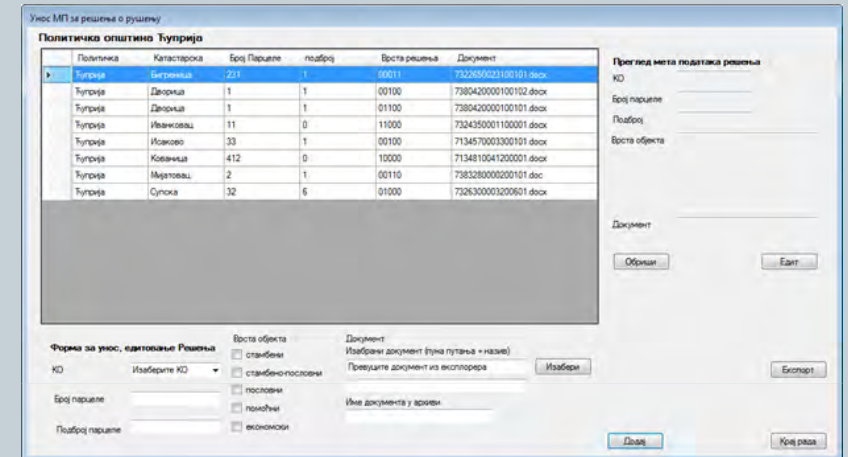
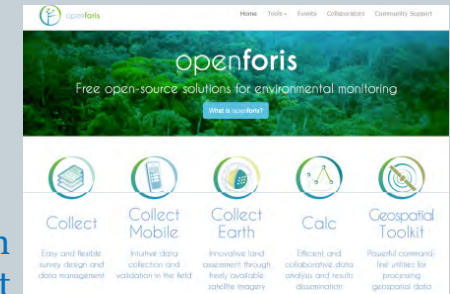
Building register, Address register, construction and planning, mass valuation and taxation



Building register

- ✓ Updated registers (inventory of changes on buildings - new, demolished, expanded; street names and house numbers definition for 4521 cadastral municipalities);
- ✓ Monitoring illegal construction and revision of spatial plans (over 2 mil of new illegal buildings identified - budget income from taxes over 200 mil euros);
- ✓ Upgraded data base for mass valuation system establishment → changes in the taxation system generating additional and regular income.

App within Collect Earth under development

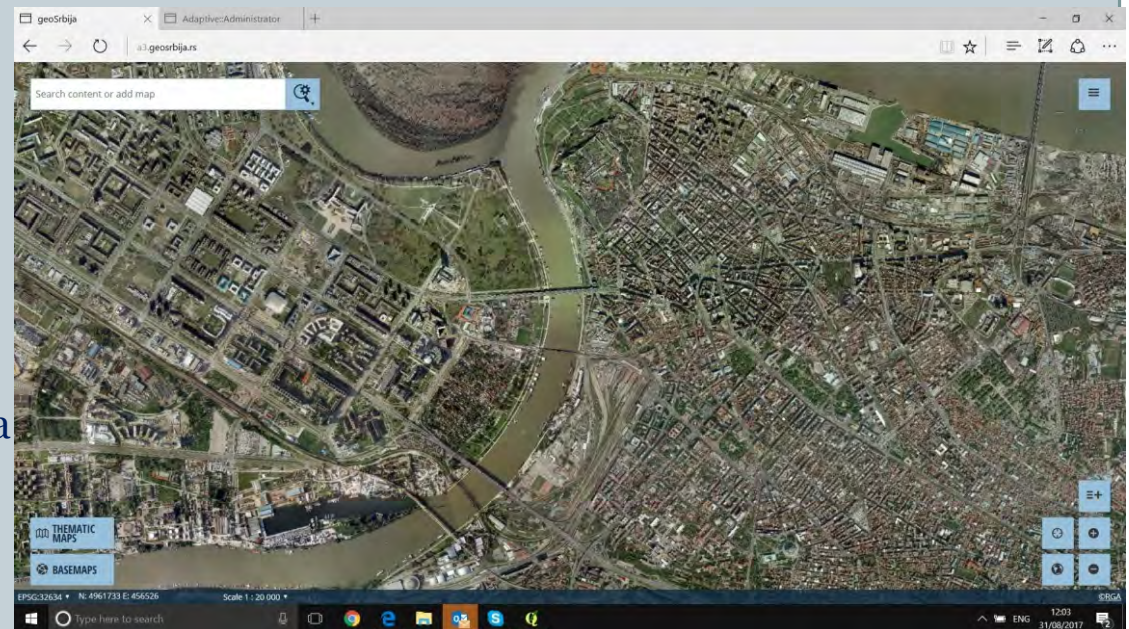


App for MetaData on decisions on demolition of illegal buildings

Initiative for new data driven applications

Upgraded national geoportal GeoSrbija– WebGIS solution

- ✓ Suited for online map distribution, data harvesting and simple analysis, as well as editing and collecting of data;
- ✓ Through administrator tool, users with dedicated permissions can easily set up new clients; defining their content, functionality, user interface, and cartography;
- ✓ Enables Crowd Sourcing functionality – way for collecting new and maintain existing data;
- ✓ Based on OpenSource solutions: MapServer, Lucene, Open Layers, Sencha...
- ✓ Improvements:
 - Improved performances
 - Improved search/indexing
 - More data
 - Download
 - Digitalization
 - Crowd Sourcing
 - Edit data
 - Import external WEB sevicees and data
 - Customized reports
 - Print/SaveFile/Embended map
 - ...



Initiative for new data driven applications

Upgraded national geoportal GeoSrbija– WebGIS solution

The screenshot displays the GeoSrbija WebGIS application interface. The browser window shows the URL 'a3.geosrbija.rs'. The main map area displays an aerial view of a city with various data layers overlaid, including administrative units, addresses, cadastral parcels, and orthoimagery. A search bar is visible at the top left. The right sidebar, titled 'Layer Manager Pro', lists several layers with checkboxes and expand/collapse arrows. The bottom status bar shows the map's coordinates (EPSG:32634, N: 4962698 E: 457505), scale (1:10,000), and the user's location (ENG, 12:05, 31/08/2017).

Search content or add map

Layer Manager Pro

- Administrative Units
- Addresses
- Cadastral Parcels
- Orthoimagery
- Topographic maps
- Elevation
- Digitalisation
- Floods 2014
- Coordinate reference systems
- Geographical grid systems
- Spatial plans
- Transport Networks
- Climatology
- Hydrography
- Statistical Units
- Population distribution

THEMATIC MAPS
BASEMAPS

EPSG:32634 N: 4962698 E: 457505 Scale 1: 10 000

12:05 31/08/2017

Initiative for new data driven applications

Upgraded national geoportal GeoSrbija– WebGIS solution

The screenshot displays the GeoSrbija WebGIS interface. The main map area shows an aerial view of urban parcels with a yellow highlighted parcel. The interface includes a search bar at the top left, a Layer Manager Pro panel on the right, and a data table at the bottom. The Layer Manager Pro panel lists various layers, including Administrative Units, Addresses, Digitalisation, Cadastral Parcels, Building, Cadastral Parcel, Text (DKP), Orthoimagery, Topographic maps, Elevation, Floods 2014, Coordinate reference systems, Geographical grid systems, Spatial plans, Transport Networks, Climatology, and Hydrography. The data table below the map shows a list of parcels with columns for ogc_fid, matricnibr, brojparcele, površina, status, status_pa, matricni_b, kat_opstir, kat_opstir, matricni_b, opstina_ir, opstina_ir, status_dk, dkp_statu, in_date, parcela_ic, shape, and bparcele. The table is filtered to show 142 parcels, with the first four rows visible.

ogc_fid	matricnibr	brojparcele	površina	status	status_pa	matricni_b	kat_opstir	kat_opstir	matricni_b	opstina_ir	opstina_ir	status_dk	dkp_statu	in_date	parcela_ic	shape	bparcele
261845...	476056...	4923/3	11080	0	УПИСА...	703648	ВРАЧАР	ВРАЧАР	70114	БЕОГР...	БЕОГР...	1	ДКП У...	2016-0...	703648...	010300...	4923 kr...
354209...	476033...	1761	352	0	УПИСА...	703648	ВРАЧАР	ВРАЧАР	70114	БЕОГР...	БЕОГР...	1	ДКП У...	2016-0...	703648...	010300...	1761
363378...	475996...	2191	6964	0	УПИСА...	703648	ВРАЧАР	ВРАЧАР	70114	БЕОГР...	БЕОГР...	1	ДКП У...	2016-0...	703648...	010300...	2191
363378...	475996...	2190	2698	0	УПИСА...	703648	ВРАЧАР	ВРАЧАР	70114	БЕОГР...	БЕОГР...	1	ДКП У...	2016-0...	703648...	010300...	2190

Initiative for new data driven applications

Upgraded national geoportal GeoSrbija– WebGIS solution

The screenshot displays the GeoSrbija WebGIS interface. The search bar contains 'bulevar mihaila pupin'. The search results list several entries for 'BULEVAR MIHAILA PUPINA 3' and 'BULEVAR MIHAILA PUPINA 4' in Novi Beograd. The main map area shows an aerial view of a residential area with cadastral parcels overlaid. The bottom of the interface features a table of results and a layer manager.

ogc_fid	matricnibr	brojparcele	povrsina	status	status_pa	matricni_b	kat_opstir	kat_opstir	matricni_b	opstina_ir	opstina_ir	status_dk	dkp_statu	in_date	parcela_ic	shape	bparcel
363392...	476015...	1564/1	193	0	УПИСА...	703648	ВРАЧАР	ВРАЧАР	70114	БЕОГР...	БЕОГР...	1	ДКП У...	2016-0...	703648...	010300...	1564 kr...
363394...	476016...	1745/2	109	0	УПИСА...	703648	ВРАЧАР	ВРАЧАР	70114	БЕОГР...	БЕОГР...	1	ДКП У...	2016-0...	703648...	010300...	1745 kr...
363394...	476016...	1746/2	59	0	УПИСА...	703648	ВРАЧАР	ВРАЧАР	70114	БЕОГР...	БЕОГР...	1	ДКП У...	2016-0...	703648...	010300...	1746 kr...
363394...	476016...	1666	187	0	УПИСА...	703648	ВРАЧАР	ВРАЧАР	70114	БЕОГР...	БЕОГР...	1	ДКП У...	2016-0...	703648...	010300...	1666

Layer Manager Pro

- Administrative Units
- Addresses
- Digitalisation
- Cadastral Parcels
 - Building
 - Cadastral Parcel
 - Text (DKP)
- Orthoimagery
- Topographic maps
- Elevation
- Floods 2014
- Coordinate reference systems
- Geographical grid systems
- Spatial plans
- Transport Networks
- Climatology
- Hydrography

Initiative for new data driven applications

Upgraded national geoportal GeoSrbija– WebGIS solution

The screenshot displays the GeoSrbija WebGIS application interface. The main map area shows a satellite view of a rural landscape with fields and a winding road. A search bar at the top left contains the text "1683/1". The interface includes a sidebar on the right with a user profile "testdigi" and a "Form" section with an "Upload media" button. The bottom of the screen shows a Windows taskbar with the search bar, taskbar icons, and system tray information including the date "01/09/2017" and time "08:29".

geoSrbija Adaptive:Administrator a3.geosrbija.rs

1683/1

testdigi Collapse >

Form + Upload media

THEMATIC MAPS

BASEMAPS

EPSG:32634 N: 4901137 E: 525191 Scale 1 : 5 000 ©RGA

TESTDIGI x Expand

Type here to search

ENG 08:29 01/09/2017

Initiative for new data driven applications

Upgraded national geoportal GeoSrbija– WebGIS solution

The screenshot displays the GeoSrbija WebGIS application interface. The main window shows a satellite map of a rural area with a yellow location pin. The interface includes a search bar with the text "1683/1", a sidebar with navigation options like "THEMATIC MAPS" and "BASEMAPS", and a right-hand panel for data entry. The data entry panel contains fields for "Id" (21), "Area (m²)" (31.22), and "Slika" (a photo of a pile of trash). The bottom of the screen shows the Windows taskbar with the time 08:31 and date 01/09/2017.

geoSrbija Adaptive:Administrator a3.geosrbija.rs

1683/1

8b88723d-3094-4c8a-920... Collapse >


Show attachments (1) Export to PDF

Clone

asdf

Id * 21

Area (m²) * 31.22

Slika * 

DrugaSlika: + Upload media

URL:

Geometry

Save Close

EPSG:32634 N: 4896256 E: 527156 Scale 1 : 5 000 ©RGA

TESTDIGI x Expand

Type here to search

08:31 01/09/2017

Initiative for new data driven applications

Upgraded national geoportal GeoSrbija– WebGIS solution

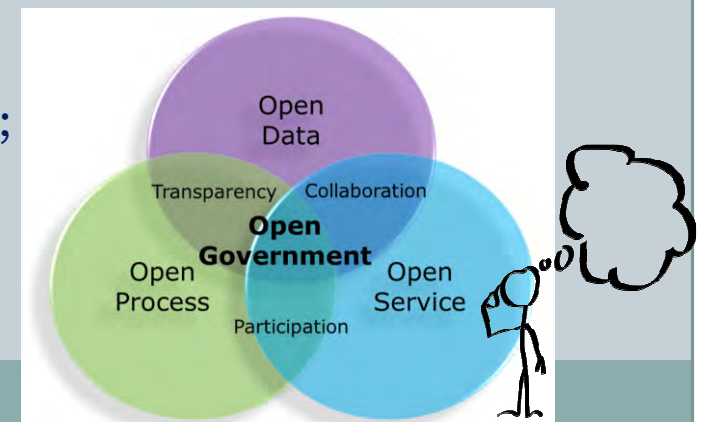
The screenshot displays the GeoSrbija WebGIS interface. The main map area shows an aerial view of a city street with a purple polygon overlaid on a building. The interface includes a search bar at the top left, a map control panel at the bottom left, and a data entry panel on the right. The data entry panel contains the following fields:

- Id *: 20
- Area (m²)*: 420.78
- Slika *: [Image of a building]
- DrugaSlika: [Upload media button]
- URL: [Input field]
- Geometry: 32634 - WGS 84 / UTM zone 34N

The interface also shows a search bar with the text "Search content or add map", a scale of 1:312, and a coordinate system of EPSG:32634. The bottom of the screen shows the Windows taskbar with the date 31/08/2017 and time 12:12.

Initiative for implementation of Open Data concept

- ✓ According to the Global Open Data Index for 2014, which measures the openness of data globally, Serbia is 48th out of 97 countries;
- ✓ The availability of quality data, governance and exchange within the Government, as well as the general understanding of the policy-making process based on data, have been recognized as a key challenge for the transformation of the Republic of Serbia in line with the European administrative space;
- ✓ Electronic Government Development Strategy 2015 – 2020 recognizes the concept of Open Data;
- ✓ In 2016, importance of Spatial Data and NSDI for Open Data concept is recognized. In 2017-2018, Open Data feasibility study and implementation plan for spatial data will be developed as well as revenue strategy;
- ✓ Link between Open Data portal and NSDI portal is planned;
- ✓ NSDI working group for Open Data – plan to be established by the end of 2017.



Conclusion



- ✓ Development of national capacities in the geosector is a huge challenge (leadership, strategy, political support, demonstration of socio-economic benefits etc.);
- ✓ Coordination and cooperation between all stakeholders and at all levels is necessary (public and private sector, educational institutions and relevant professions);
- ✓ The introduction of motivation mechanisms that would encourage innovation, research and development is key to progress;
- ✓ CoE for Management of Geospatial Information as a coordinator in the realization of the necessary activities, represents a solution and an instrument for a professional revolution within geosector in Serbia.

Thank you for your attention !