

**LEGISLATIVE FRAMEWORK AND IMPLEMENTATION ISSUES  
FOR SPATIAL DATA INFRASTRUCTURE DEVELOPMENT  
IN WESTERN BALKANS REGION**

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**ABSTRACT**

Adopted in year 2007 the European's Union directive on Infrastructure for Spatial Information in European Community (INSPIRE) has defined legislative frame for establishment of national and European Spatial Data Infrastructures (SDI). Regardless to the fact that this directive is obligatory only for EU member states, it becomes also legislative frame for other non-EU countries. In this context, at the same time when INSPIRE directive has been adopted, countries in the Western Balkans region have started with development and implementation of national legislations introducing provisions about national SDI (NSDI). This development has been promoted by national mapping and cadastre authorities (NMCA) in respective countries and had definitely a national character. Due to the level of economic development and since there was no adoption obligation of INSPIRE directive for countries in the Western Balkans the steps in SDI development and their dynamics differ from development in European Union.

Relying on own initiative in development of NSDI in respective countries, national NMCA's had to search for optimal ways building their national SDI's. Those developments were supported through the bilateral cooperation with donor countries, World Bank and EU projects, but, at the same time it was strongly influenced by developments in the region, especially after regional cooperation on cadastre and SDI has been established in year 2008. Established regional cooperation was especially productive in field of NSDI legislation adoption and institutional development speeding up the whole process.

The aspects and range of the legislative efforts in the region, as well as its repercussion on SDI development, is the subject of this paper. Several issues are in the focus of investigation. The impact of adopted legislations with emphasis on the implemented solutions, conformity with INSPIRE directive, relevancy of international and regional cooperation on dynamics of implementation and relevancy of raising public awareness about the NSDI and its benefits to society.

**Keywords:** NSDI, Western Balkans, legislative framework, implementation

## INTRODUCTION

Today become commonly accepted that the concept of organizational and technical measures for collection, organization, dissemination and usage of publicly created spatial information known as SDI is introduced by definition of legislative framework, either through one special law or as a part of some other act. For the countries which are member of European Union, the INSPIRE directive [3] is umbrella act which has been transposed in national legislations usually by national SDI law. This development is very recent due to the fact that INSPIRE was adopted in 2007. The Western Balkan countries, here understood as a politically (not geographically) defined area by the European Union, including seven countries in South-East Europe which are not yet members of the European Union: Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro and Serbia, see Figure 1, followed this development and started also to introduce provisions of SDI in their national legislations. This has been done by own capacities but also with support from abroad. Namely, delayed for almost ten years due to the wars which occur at the beginning of that period, rather soon, for the national mapping and cadastre authorities of the involved countries become clear that challenges are so huge that they cannot be solved alone. This has resulted in bilateral cooperation with donor countries like Austria, Germany, Japan, Norway, Sweden, The Netherlands, United Kingdom and United States of America, followed by The World Bank loans and European Union programmes.



Figure 1: Western Balkans Region & Regional cooperation on cadastre and SDI countries – areas of institutional responsibility [1]

But, even benefiting this massive support, it has been recognized that this is not enough and local experience in implementation of reforms and development of SDI has been searched in neighbourhood. Due to historical (political, economical and legislative heritage) and partly linguistically reasons, in year 2008, on Croatia's State Geodetic Administration initiative, Regional cooperation on cadastre has been, at the 1<sup>st</sup> Regional conference on cadastre, hold in Opatija, Croatia, established [5]. The countries involved in this regional cooperation were Bosnia and Herzegovina, Croatia, Kosovo,

Macedonia, Montenegro, Serbia and Slovenia. Therefore Slovenia is shown on Figure 1, regardless to fact that is not part of European Union political definition of Western Balkan. Albania has joined regional cooperation on 3<sup>rd</sup> Regional conference hold in Bečići, Montenegro in 2010 [6], where has also been concluded that regional cooperation beside cadastre should explicitly expand on SDI area. Developed cooperation has created situation that countries in the region primarily are developing their national SDI but secondary, this cooperation results also in regional harmonization and kind of regional SDI is under development [2].

## PRESENT SDI LEGISLATION IN THE REGION

In past seven years, see Figure 2, eight out of nine parliaments (Bosnia and Herzegovina has two entities), except Federation of Bosnia and Herzegovina, have adopted new state survey & cadastre legislation, out of which seven (except Kosovo) have introduced provisions on SDI.

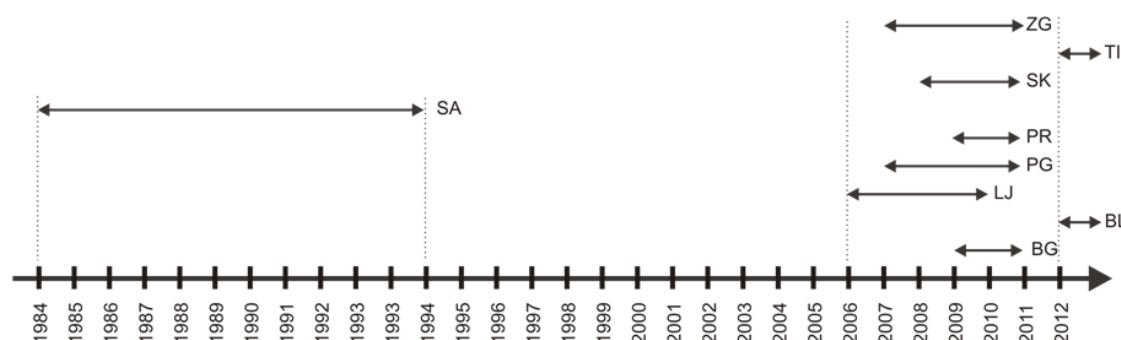


Figure 2: Adoption period of valid main legislation [1]

Regarding extension of SDI provisions in newly introduced legislations they differ from country to country. Three countries have introduced separate NSDI laws. Slovenia, as European Union country, has completed the basic process and adopted the Infrastructure for Spatial Information Act in 2010 [8]. Albania introduced law No. 72/2012 for organization and functioning of National Infrastructure for Spatial Information in the Republic of Albania, whereas Croatia, which will become member of the European Union on July 1<sup>st</sup> 2013, has done it just recently under the name Law on National Spatial Data Infrastructure [7]. All three acts are covering all aspects of NSDI legislation and through those laws Slovenia and Croatia have fully transposed INSPIRE directive in to their legislation.

Next group of countries, Macedonia, Montenegro, Serbia and Republic Srpska entity in Bosnia and Herzegovina introduced in frame of national state survey and cadastre laws chapters on NSDI. Those five to nine article chapters are defining stakeholders, activities, data sets, services (especially metadata service and national geo-portal) under the law, access to data and NSDI bodies. It is worth to mention that Agency for Real-estate Cadastre of Macedonia has drafted their NSDI law and is in process of inter-ministerial coordination. Finally, Federation of Bosnia and Herzegovina and Kosovo are intensively working on preparation of NSDI legislation and their NMCA's are expecting to pass those law regulations soon.

Apart from the fact that the majority of the countries have NSDI legislation in place, very important issue for implementation of NSDI in each country is development and formal approval/acceptance of national SDI strategy. Either as agency or as official document of their governments six out of nine responsible institutions (NMCA's) have this strategy in place (Albania, Croatia, Macedonia, Serbia, Slovenia and Republic Srpska in Bosnia and Herzegovina). Those strategies are different in structure, content and ambition, but all of them include legislative, organizational, educational and technical issues relevant for establishment and implementation of SDI in respective countries.

Adopted NSDI legislation incorporates clear and straightforward provisions on organization of NSDI bodies (except present legislation in Macedonia) enabling their establishment. In general given roles to NSDI bodies are very similar, whereas their structure differs from country to country, see Figure 3. Basically there is always a kind of NSDI Council as a decision making body, some countries have under the Council NSDI Boards as operational bodies, and under them, formally or informally there are NSDI Workgroups. Special solution introduced Albanian law on SDI where is also foreseen to establish special governmental agency which will be responsible for development and implementation of NSDI.

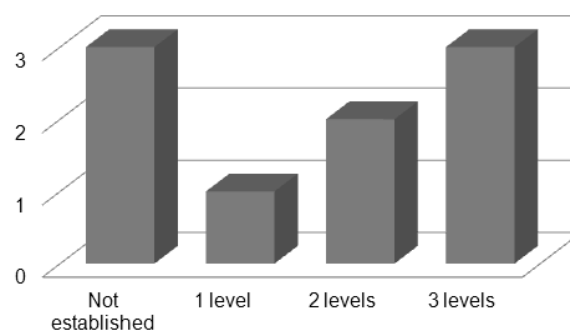


Figure 3: NSDI organizational structure (existence and number of levels) [1]

Regarding introduced NSDI legislation and organizational structures in the countries in the region there is visible similarity resulting from the regional cooperation, what is also logical, due to historical reasons and common, especially legislative, heritage and practices. It is also logical that stepwise approach has been implemented, introducing first SDI legislation incorporating only part of INSPIRE Directive provisions, followed by setting up organization, building first services and applications and executing extensive public awareness and education campaigns. After reaching certain level of development of SDI in their countries, second step, introduction of NSDI laws fully harmonized with INSPIRE directive have been introduced. The mentioned regional cooperation helped the national institutions to avoid, or better to say reduce starting errors and wrong steps. Regarding the situation in countries in the region regarding spatial information, cooperation of governmental institutions, technical preconditions etc it was not possible to implement directly solutions which developed countries in Western Europe have introduced for implementation of NSDI in their environments. Therefore, knowledge collected by neighbours and disseminated among the institutions together with knowledge coming from international partners have created creative environment for development and implementation of SDI in countries in the region.

## PRESENT ACTIVITIES ON SDI IN WESTERN BALKANS

After the first wave of adoption of basic provisions on SDI and establishment of NSDI bodies in the countries in the region, those NSDI bodies through the activities of NMCA's have focused their attention on establishment of basic SDI services, primarily metadata services and geo-portals, see figure 4.



Figure 4: Examples of NMCA/national geo-portals in Croatia, Serbia, Macedonia and Montenegro

Regarding other, more complex services focused also more on other governmental institutions, main stakeholders of NSDI, development was not so fast, see figure 5. Reason for this is that those services (invoke, transformation, download, discovery, etc) require, beside functional application and well structured standardized data, also similar level of preparation, organizational and technical, among all involved stakeholders. Creating such environment and readiness of all stakeholders for full implementation of INSPIRE standards is next step in development of NSDI for most of the countries in the region together with continuation of efforts on standardization of digital data sets and their update, as described in [4] as well as production of missing products (for example topographical map in scale 1:250.000 which become standard in the European Union).

## CONCLUSION

Countries of Western Balkan and their national mapping and cadastre authorities managed (mainly), despite the delay, missing knowledge and finances, to follow

development of SDI in Europe and create proper legislative, organizational and technical platform for development of their national SDI's in line with European Union INSPIRE Directive. The established international and especially regional cooperation are also additional guarantee that this development will continue and that countries in Western Balkan will soon become part of integrated European SDI space.

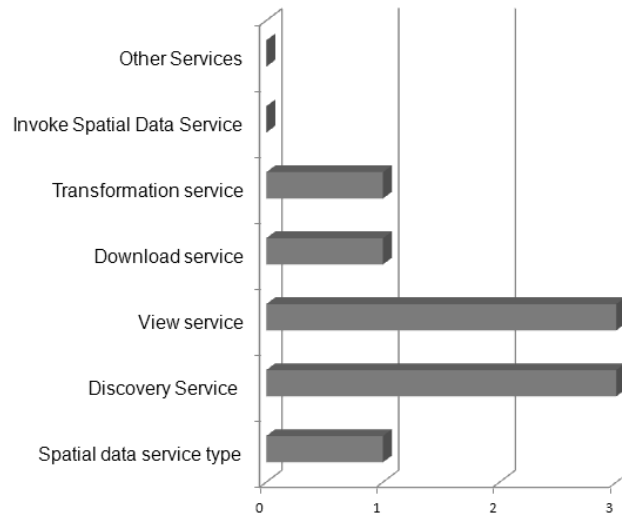


Figure 5: NSDI services establishment status [1]

## REFERENCES

- [1] Bačić, Ž. & Poslončec-Petrić, V.: Regional Cadastre Study 2012, 5<sup>th</sup> Regional Conference on Cadastre, Banja Luka - Laktaši, Bosnia and Herzegovina 2012. Publishers: Bureau for Geodetic and Property Relations of Republic Srpska and Federal Geodetic Administration of the Federation Bosnia and Herzegovina 2012, 114 pages.
- [2] Bačić, Ž.; Rašić, Lj.; Lapaine, M.: Developing Spatial Data Infrastructure in Croatia – Incorporating National and Regional Approach, *Cartography and Geoinformation*, 14, 4-23, 2010.
- [3] Official Journal of the European Union: 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). Published 25.04.2007, L108/1-14.
- [4] Poslončec-Petrić, V.: Distribution of Spatial Data official cartography in the Republic of Croatia, University of Zagreb, Faculty of Geodesy, Ph.D. thesis, 2010.
- [5] Roić, M.: Regional Cadastre Study 2010, 3<sup>rd</sup> Regional Conference on Cadastre, Bečići, Montenegro 2010. Publisher Real Property Directorate of the Republic of Montenegro 2010, 82 pages.

[6] Roić, M.; Fjalestedt, J.B.; Steiwer, F.: Regional Cadastre Study 2008, 1<sup>st</sup> Regional Conference on Cadastre, Opatija, Croatia 2008. Publisher State Geodetic Administration of Republic of Croatia, 2008, ISBN 978-953-293-000-9, 76 pages.

[7] URL: <http://www.sabor.hr/Default.aspx?art=53356>. Sabor Republike Hrvatske: Zakon o nacionalnoj infrastrukturi prostornih podataka.

[8] Uradni list Republike Slovenije: Zakon o infrastrukturi za prostorske informacije. Uradni list 8/2010 od 5.02.2010.