

BUILDING CROATIAN SPATIAL DATA INFRASTRUCTURE IN LINE WITH EUROPEAN STANDARDS

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ABSTRACT:

Croatia is on its way to join the European Union as well as European information society what means that policies, technical standards and operational facilities should be harmonized with European standards and Inspire. One of the main initiators for SDI establishment activities was the State Geodetic Administration (SGA), the national mapping and cadastre authority in Croatia. The study dealing with SDI was produced in 2005. It is an operative document that gives institutional framework and procedures compliant with EU information communication technology standards. The first legislation concerning SDI in Croatia was the new Law on State Survey and Real Estate Cadastre that came into force in February 2007. It is also necessary within a short time upon passing the Law to create SDI tools which will serve for its materialization. In this context, the SGA has undertaken establishment of IT systems which are important for the future functioning of SDI. Being aware the fact that one of the key factors will be the degree of education of SDI subjects as well as whole Geo-Information market and community the SGA already took steps which were directed at establishing such forms of communication and education. The main goals for the next time are SDI capacity building and strengthening its bodies, adopting standards and specification in line with INSPIRE, establishment of metadata service firstly for SGA data and then for other SDI data, networking other key players, releasing NSDI tools in use as foreseen and spreading knowledge and information.

1. NATIONAL SCENE FOR INFORMATION SOCIETY

In 2004 Croatia received candidate status for membership to European Union (EU) and it is expected to get full membership in the near future. This fact understands also joining European information society what means that policies, technical standards and operational facilities should be harmonized with European standards, with the Infrastructure for Spatial Information in Europe (Inspire), which entered into force on 15th May 2007. Since several years Croatian information society has been aware of need to achieve interoperability of spatial data and spatial data infrastructure (SDI). Croatian government has recognized importance of SDI, what is visible in the field of developing national IT systems, GIS-supported and spatial databases. The national SDI (NSDI) should be an integral part of the Croatian e-government infrastructure.

The e-Croatia 2007 programme marks the efforts of the Government of the Republic of Croatia to transform the Croatian society into an information society. In accordance with the EU recommendations, the e-Croatia 2007 programme will provide the Croatian citizens and the economy with the highest level of information services and the most widespread use and exchange of information, thus creating opportunity for their active participation in global developments. It follows the guidelines of The Action Plan e-Europe 2005, supplemented with the recommendations for the Action plan after 2005 (e-Government beyond 2005) and finally The 2010 Initiative which recognizes information and communication technology as a powerful moving force in both development and employment (Republic of Croatia 200x). The e-Croatia 2007

programme consists of several areas and one of them is e-Government.

Support given by the Government has resulted in many activities in the field of developing the entire IT infrastructure and increased investments in this field. The Government has adopted a series of strategic documents streamlining the activities of State administrative bodies and has initiated a number of projects.

To accomplish the aim of initiating economic and social activities, the authorized expert bodies within the Government of the Republic of Croatia (the Central State Administrative Office for e-Croatia and the Central State Administrative Office for Public Administration) have created the HITRO.HR Programme (the One-Stop-Shop Programme) which has been launched in order to increase the level of service quality within the bodies of state administration. HITRO.HR also involves six other services: establishing a craft – e-OBRT, e-REGOS (Central Registry of Insured Persons), e-KATASTAR (e-Cadastre), e-PDV (VAT), e-MIROVINSKO (Pension) and e-ZDRAVSTVENO (e-Health).

At the same time process of SDI establishment has already started and with the new Law on State Survey and Real Estate Cadastre (2007) it got legal and institutional framework. Major steps for SDI establishment have been already undertaken. It is the main task for the national spatial data infrastructure (NSDI) bodies and wider seen to whole GI community to run SDI establishment process fully harmonised with Inspire and on the other hand with e-Croatia programme. SDI establishment process has to be fully implemented into e-Croatia programme,

what means that e-Croatia and NSDI should streamline activities by harmonizing interoperability approaches and fulfilment of mutual needs.

2. NSDI DEVELOPMENT PREPARATION PHASE

2.1 NSDI forerunners

One of the main initiators for SDI establishment activities was the State Geodetic Administration (SGA), the national mapping and cadastre authority in Croatia. It took the first actions on fulfilment of prerequisite for SDI establishing.

In 1996 SGA started a project, which led to establishing of topographic information system. Through CROTIS project (CROatian Topographic Information System) standardization of topographic spatial data is comprised, that gives main and detailed solutions of topographic spatial system in domain of data model, their collecting, processing, accuracy, way of presentation, topologic relations and their interchange. The basic purpose of CROTIS is its application in all spheres of spatial data management.

In 2001 Croatian Government adopted the Programme for State Survey and Real Estate Cadastre for the period 2001-2005. At that time the term SDI was not so well-known but the similar principles and ideas can be seen in the mentioned document and some of them are listed in the following text. According to the Programme SGA was obliged to establish so called Multipurpose Spatial Information System (MSIS), fostering national needs for efficient and rationale use of spatial data produced by governmental bodies and private sector. Establishment of MSIS anticipates development of national databases for the products under responsibility of the SGA and their connection into a unique information system that will allow the users to use the data effectively and expand them by their attribute data.

The holder of the Program implementation was the SGA, responsible also for implementation of the Programme. It was defined that for each subprogram a co-ordination commission, consisting of representatives from different state bodies, should be appointed. The co-ordination committee co-ordinates interdepartmental activities, directs the implementation of subprograms and investments of funds. The participant at the implementation of the Program are, apart from the holders SGA, ministries and state authorities included into the co-ordination committees, were also counties, units of local self-government at the territory of which the jobs from the Program are carried out as well as public enterprises. The participants at the implementation of the Program were also international institutions and competent agencies from other countries that deliver professional, technical and financial support to it on the basis of loan and technical collaboration agreements.

The funds for the implementation of this Program were provided from several sources, like state budget, county and units of local self-government budgets, then from public enterprises, loan granted by the World Bank, donations and commercial loans. At the same time Croatian Geodetic Institute (CGI) was founded. One of the main tasks of CGI has been quality control of SGA data. The whole production has been outsourced, performed by private sector. The described process was a prototype of SDI (Figure 1).

The new Law on State Survey in Real Estate Cadastre that came into force in February 2007 (further: Law) confirmed the co-financing model, defining that counties, cities, municipalities and other interested legal and natural persons can participate in the provision of funds for carrying out the state survey and real estate cadastre works.

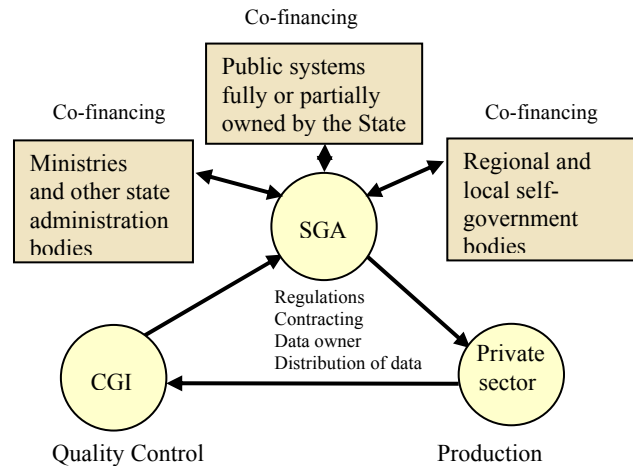


Figure 1. Co-operation model as a SDI forerunner

2.2 External experience use

Three very important studies dealing with geographic information (GI) and SDI tasks were produced for SGA. The first study was produced in 2001 by BloomInfo (Arponen et al, 2001) and gave review of EU requirements for GI in Croatia, whereas another two studies are more oriented into SDI topics.

The second study produced by Connterra in 2005 (Remke et al, 2005) is a first one dealing with SDI. It is an operative document, the aim of which is to guide the development of the rule book as well as the decision making process regarding the institutional framework settings. One of the results was so-called NSDI Roadmap (Wytzisk et al, 2005) which gave the organisational levels that was later implemented into the Law. The study identifies and describes the procedures for establishing SDI in Croatia, compliant with EU information communication technology standards. With this study preparation phase was finished and preconditions for transposition phase were established.

The third study was accomplished by Geolink Consulting Ltd from Great Britain. It brings together Inspire and NSDI in Croatia and gives some recommendations for further activities on SDI establishment (Geolink Consulting Ltd, 2006).

In frame of collaboration with Swedish International Development Cooperation Agency several courses for an aimed group of participants involved in NSDI establishment in Croatia, were organized where experiences in field of NSDI management, standards and data delivery were shared and same proposal and instructions suggested.

3. CROATIAN SDI LEGAL FRAMEWORK IN COMPARISON WITH INSPIRE

As a non EU country, Croatia is not obliged to apply Inspire directive at the moment. Since Croatia is on the way to become

a part of EU, it was decided to use advantage that Inspire directive is already published and to use it in order to prepare information society to be ready to implement Inspire directive at the moment we will join EU and be obliged to implement Inspire.

Very long time Croatia did not have any legislation regulating GI filed. The first legislation concerning SDI in Croatia came into force in February 2007. A separate chapter defining SDI was included in the new Law on State Survey and Real Estate Cadastre. At the time the Law was preparing, the proposal of Inspire directive was published, so all articles defining NSDI are fully in line with Inspire. The Law gives definition of NSDI and metadata, content of metadata information, services, NSDI data and subjects that are obliged to participate in its establishment and maintenance, and what is very important gives institutional framework and defines NSDI bodies and their responsibilities. NSDI subjects are responsible for the regular maintenance of the data regarding their spatial data sets and services and are obliged to make available the spatial data information under their jurisdiction or authority for the national geoportail.

The content represents only a part of the topic comprised by the Inspire directive because it was assessed that the entire directive would not be feasible in Croatia at this moment, or rather it would set up very high criteria that might be rejected by the stakeholders. There was an idea to prepare a separate law concerning NSDI, but at the moment this idea was impossible to realize and would take very long time, therefore, decision was made that basic legal framework should be established in frame of the Law on State Survey and Real Estate Cadastre. Table 1. gives some comparison facts between Inspire and the Law. It is important to stress the current Croatian SDI legislation is only the first step of transposition Inspire into national regulations. The SDI part of the Law is harmonized with Inspire, the main Inspire idea is accepted, but only basic Inspire principles are defined. The next will be transposition of the whole Inspire and Implementing rules as soon as they are available into national regulations.

| Term | Inspire | | Law on State Survey and Real Estate Cadastre |
|------------------------------------|-----------|----|-----------------------------------------------|
| Applicable community | EU | | Croatia |
| Date of entering into force | May 2007 | | February 2007 |
| No. of articles | 26 | | 11 |
| No. of covered spatial data themes | Annex I | 9 | Fully complaint with Inspire Annexes I and II |
| | Annex II | 4 | |
| | Annex III | 21 | Mostly complaint with Inspire Annex III |

Table 1. EU and Croatian SDI regulations

Spatial data themes defined in Inspire Annexes I and II are in Croatia mostly under responsibility of the SGA (Table 2). Definition of data themes in the Law are no so detailed described and listed like in Inspire annexes, sometimes a term from the Law, defined as NSDI data, covers several Inspire data themes. Some of them, for example transport networks and hydrography are available in SGA as well as other responsible

institutions. One of main Inspire principles is to avoid duplication of data producing, what shows that some activities will be necessary in this filed. Themes from Annex III are mostly under responsibility of other institutions.

| Inspire | | Law on State Survey and Real Estate Cadastre | |
|---------|----------------------------|-------------------------------------------------------|---|
| Annex | No. of spatial data themes | No. of spatial data themes under SGA's responsibility | |
| I | 9 | fully | 5 |
| | | optionally | 3 |
| II | 4 | 2 | |

Table 2. Inspire spatial data themes under SGA's responsibility

4. CROATIAN SDI IN COMPARISON WITH EUROPEAN SDI INSTITUTIONAL FRAMEWORKS

Therefore, the Law also define SDI institutional framework for SDI establishment. The supreme SDI governing body is the SDI Council appointed by the Croatian Government. The Council is appointed by the Government and comprised of 15 members coming from different ministries responsible for environment protection and spatial planning, defence, land registry, transport and communications, agriculture, forestry and water management, science and education, culture, state administration body responsible for e-government, state survey and real property cadastre (NMCA), statistics, then Croatian Hydrographic Institute, Croatian Geodetic Institute, geodetic and geoinformatics economic community, IT economic community as well as Croatian Chamber of Architects and Civil Engineers. On the managerial level, there is the SDI Committee appointed by the Council and consisting of three representatives from the Council, two from SGA and heads of working groups. On the operational level there are working groups. The SGA acts as the Secretariat of the SDI Council, coordinates all SDI bodies and provides technical support.

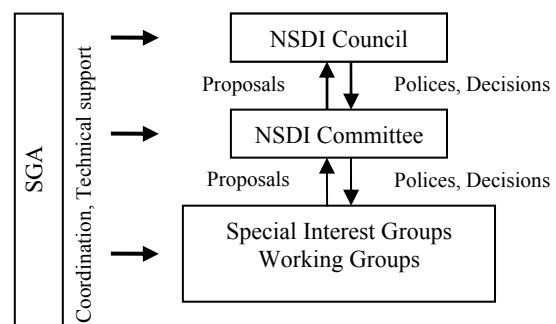


Figure 2. NSDI Institutional framework

Mainly SDI initiatives in European Union are led by national data producers such mapping agencies. On the other site there are countries where SDIs are led by a council of ministries, a GI association or a partnership of data users (Masser 2007). Where will be Croatian SDI? According to the Law it should be led by the Council with formal mandate on four-year period, but coordination body is the SGA, national mapping and cadastre agency.

communal GIS for the City of Labin will be established, which will gather data from the cadastre, the municipality planning department, and various utility companies, and exchange and distribute the data over Intra-net/Internet.

Being aware the fact that one of the key factors will be the degree of education of SDI subjects as well as whole Geo-Information market and community the SGA already took steps which were directed at establishing such forms of communication and education. Thus, the SGA newsletter called "Vizura" was launched in December 2006, with the basic objective to offer information about the work of the SGA as well as SDI establishment in particular. Subsequently, SGA recognised importance of education very early, even at the time of preparing the Law. Therefore, SDI workshops were launched to transfer best practices. Two workshops with the Swedish and Canadian colleagues were held in 2007, where a crosscut trough the whole GI market was made and about 170 participants were invited.

6. FURTHER ACTIVITIES ON SDI ESTABLISHMENT

The main goal for the next time will be full implementation of institutional framework defined by the Law and going into effect their tasks. SDI Committee and two working groups should be established till end of 2008.

One of the next very important steps will be adopting of action plan with clearly defined activities, timetable and deadlines. Development of NSDI strongly depends of available funding; therefore it is very important to strengthen political support.

Transposition of the Inspire in the national regulations should be continued as well as Implementing Rules as soon as they are accepted. To achieve full coordination with EU legislation and activities National contact point for INSPIRE should be appointed.

The SGA is obliged to establish a metadata service till 2010 trough a national geoportal. Since the Inspire Drafting Team for MetaData has already given a Draft Implementing Rules for Metadata, activities in this field in Croatia should go in direction to monitor, evaluate and comment INSPIRE results and to find the way how to implement them into Croatian SDI. The same principles should be applied on other Inspire drafting teams' working fields.

SDI capacity building is one of the main tasks, what means that the whole community should be ready for NSDI implementation. For the year 2008 two workshops for sharing best practices are planned. The next workshop is planned in May 2008 where German example of SDI will be presented, and after that Croatian GI community will have opportunity to see Norwegian SDI model. NSDI publication consisting of two NSDI studies (Remke et al, 2005 and Geolink Consulting, 2006) is prepared for publication in Croatian language. The aim of the study is informing the whole professional community directly involved in NSDI establishment, on national, regional, local and business level, as well as all users on undertaken activities and next activities.

7. CONCLUSION

The huge steps on SDI establishment in Croatia have been already undertaken. Trough the new Law on State Survey and Real Estate Cadastre that entered into force in February 2007 legal framework was established, what was only one significant step in the process established by the SGA in the past. Full implementation of the institutional framework will be achieved till the end of 2008. NSDI activities and e-Croatia programme have to be harmonised, common goals and activities have to be strengthened for the profit of the whole community. Coordination of SDI is the main factor for success; therefore the role of SGA as coordination body in SDI establishment process has been significant. According to the mentioned tasks SGA's activities will go in direction of SDI capacity building and strengthening its bodies, continuation of transposition Inspire into national regulations, establishment of metadata service trough a national geoportal, networking other key players, releasing NSDI tools in use as soon as possible and spreading knowledge and information.

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