

# Visit to the Main Office for Geodesy and Cartography of Poland for the Purpose of Sharing Experience in Using EU Funds

## 1 Introductory Information

The delegation of the State Geodetic Administration consisting of its members Marijan Marjanović, Saša Cvitković and Sanja Zekušić visited the Main Office for Geodesy and Cartography of Poland (Główny Urząd Geodezji i Kartografii – GUGiK) to share the experiences in using Structural and Cohesion Funds of the European Union from November 7 to 12, 2012.

GUGiK is the Polish authority for geodesy and cartography and it is responsible to the Ministry of Administration and Digitizing. GUGiK employs 150 people and there are 7000 additional employees dealing with cadastral activity which is the responsibility of local governments. In order to compare these figures with conditions in Croatia, it should be pointed out that Poland has an area of 312 679 km<sup>2</sup> and a population of 38 million.

The Main Office for Geodetic and Cartographic Documents (Centralny Ośrodek Dokumentacji Geodezyjnej i Kartograficznej) and its 90 employees are the main support for GUGiK in maintaining the GNSS system, quality control of cartographic products, topographic and cartographic databases, DOF, 3D modelling and implementing projects. During our visit to the Main Office for Geodetic and Cartographic Activity, activities and results were presented related to work on producing 3D models of Poland by means of aerial laser scanning, producing orthophoto maps, quality control of topographic maps and topographic databases production, data centre, control centres of ASG EUPOS system of permanent GNSS stations and archives of analogous products.

Regarding the implementation of the INSPIRE directives, GUGiK has a double role: it is the coordinator of NSDI activities in Poland, as well the institution responsible for 15 of 34 INSPIRE topics. It should be mentioned that between 2009 and 2012 there were more than four thousand experts in the field of public administration educated within the frame of the project Educational support for the implementation of the INSPIRE directive in local government administration in the context of improving quality of service and efficiency of operation co-financed by EU for the purpose of establishing spatial information infrastructure, related services and mutual collaboration.

## 2 GUGiK Projects

GUGiK is currently working on four projects co-financed by the EU Fund for Regional Development within the frame of Innovative Economy of the Operational Programme, the 7th priority axis Information society – establishment of electronic administration. Fifty employees are participating in these projects, with some experts in special disciplines being paid from EU funds. During the presentation of projects, representatives of GUGiK pointed out that the available human resources are sufficient for implementing projects, since it is possible to employ specialists (consultants) temporarily.

### 2.1 Georeference base of topographic objects (GBDOT)

The goals of the GBDOT project are as follows:

- Development of database of topographic objects
- Development of a system for data collection, management and exchange of topographic objects database
- Connection, standardisation and coordination of existing databases
- Providing access to the database system by means of the portal [www.geoportal.gov.pl](http://www.geoportal.gov.pl).

The database of topographic objects is going to contain data related to geodetic points, buildings, roads, railways, hydrography, protected areas, relief and vegetation, road network and DOF. Within the project, the data is going to be collected, updated and coordinated from the register of regional units, the register of geographic names, the address register and the register of buildings. It is expected that completion of the GBDOT project is going to contribute to strengthening of national spatial data infrastructure by means of integrating existing registers and the database of topographic objects for the entire country, then to the development of entrepreneurship by means of online access to the database of topographic objects, to a more significant reduction of time needed to produce high-quality topographic and thematic data, to the acceleration of processes needed to pass decisions offering the data required for the analysis and simulation. Completion is planned for December 31, 2013.

# Posjet Glavnom uredu za geodeziju i kartografiju Poljske u svrhu razmjene iskustava u korištenju EU fondova

## 1. Uvodne informacije

Od 7. do 10. studenoga 2012. delegacija Državne geodetske uprave, u sastavu Marijan Marjanović, Saša Cvitković i Sanja Zekušić, bila je u službenom posjetu Glavnom uredu za geodeziju i kartografiju Poljske (Główny Urząd Geodezji i Kartografii – GUGiK) radi prijenosa iskustava u korištenju Strukturnih fondova i Kohezijskog fonda Europske unije.

GUGiK je nositelj aktivnosti države Poljske na području geodezije i kartografije, a nalazi se u nadležnosti Ministarstva uprave i digitalizacije. U GUGiK-u je zaposleno 150 djelatnika, s time da katastarsku djelatnost, koja je u nadležnosti lokalne samouprave, obavlja dodatnih 7000 djelatnika. Kako bi se navedene brojke stavile u relaciju s uvjetima u Hrvatskoj, važno je napomenuti da površina Poljske iznosi 312 679 km<sup>2</sup> te da u njoj živi oko 38 milijuna stanovnika.

Kao podrška GUGiK-u u vođenju GNSS-a, kontroli kvalitete kartografskih proizvoda, topografskih i kartografskih baza podataka, DOF-a, 3D modeliranja i implementaciji projekata djeluje Glavni ured za geodetsku i kartografsku dokumentaciju (Centralny Ośrodek Dokumentacji Geodezyjnej i Kartograficznej) s 90 zaposlenih. U okviru posjeta Glavnom uredu za geodetsku i kartografsku dokumentaciju prezentirane su aktivnosti i rezultati rada pri izradi 3D modela Poljske s pomoću laserskog skeniranja iz zraka, izrada ortofoto karata, kontrola kvalitete izrade topografskih karata i topografske baze, podatkovni centar, kontrolni centar ASG EUPOS sustava permanentnih GNSS-stanica te arhiva analognih proizvoda.

Vezano uz implementaciju direktive INSPIRE, uloga GUGiK-a je dvojaka, kao koordinatora NSDI-aktivnosti u Poljskoj i kao odgovorne institucije za 15 od ukupno 34 teme INSPIRE-a. Važno je napomenuti da je u razdoblju od 2009. do 2012. godine u okviru projekta Educational support for the implementation of the INSPIRE directive in local government administration in the context of improving quality of service and efficiency of operation koji je sufinancirao EU, educirano više od četiri tisuće stručnjaka javne uprave na području stvaranja prostorne informacijske infrastrukture, odgovarajućih usluga i međusobne suradnje.

## 2. Projekti GUGiK-a

Trenutačno GUGiK provodi četiri projekta sufinancirana iz Fonda za regionalni razvoj EU-a u okviru operativnog programa Innovative Economy, 7. prioritetni ciljevi Information society – establishment of electronic administration. Na tim projektima sudjeluje oko 50 djelatnika, od kojih je dio stručnjaka za posebna područja plaćen iz sredstava EU-a. Tijekom prezentacije projekata predstavnici GUGiK-a istaknuli su da su ljudski resursi s kojima raspolažu dostatni za provedbu projekata budući da u tu svrhu postoji mogućnost privremenog zapošljavanja specijalista (konzultanata).

### 2.1. Georeferentna baza topografskih objekata (GBDOT)

Ciljevi projekta GBDOT su sljedeći:

- razvoj baze podataka topografskih objekata
- razvoj sustava za prikupljanje i upravljanje podacima baze topografskih objekata i za njihovu razmjenu
- povezivanje, standardizacija i usklađivanje postojećih baza podataka
- omogućiti pristup sustavu baze podataka kroz portal [www.geoportal.gov.pl](http://www.geoportal.gov.pl).

Baza podataka topografskih objekata sadržavat će podatke geodetskih točaka, zgrade, ceste, željeznice, hidrografiju, zaštićena područja, reljef i pokrov, cestovnu mrežu i DOF. U projektu će se podaci prikupljati, ažurirati i harmonizirati iz registra prostornih jedinica, registra geografskih imena, adresnog registra i registra zgrada. Očekuje se da će ostvarenje projekta GBDOT pridonijeti jačanju nacionalne infrastrukture prostornih podataka kroz integraciju postojećih evidencija i baza podataka topografskih objekata za cijelu zemlju, razvoju poduzetništva kroz omogućeni on-line pristup bazi podataka topografskih objekata, značajnom smanjenju vremena izrade kvalitetnih topografskih i tematskih podataka, ubrzanju procesa donošenja odluka pružajući podatke potrebne za analizu i simulaciju. Predviđeni rok završetka je 31. 12. 2013.

### 2.2. Nacionalni registar granica i teritorija prostornih jedinica Poljske (TERYT 2)

Cilj projekta je podržati on-line uslugu Nacionalnog registra granica i teritorija prostornih jedinica Poljske kroz

## 2.2 National register of borders and territory of regional units of Poland (TERYT 2)

The goal of the project is to support online service of the National Register of Borders and Territory of Regional Units of Poland by means of [geoportal.gov.pl](http://geoportal.gov.pl) and other systems of state administration. Activities of the TERYT 2 project encompass producing, collecting, updating and exchanging data under the authority of the state administration related to the territorial division of the country (border of territorial organisation of the state, borders needed by official statistics, border of court and prosecution authority jurisdiction, borders of harbours and marinas, sea coast, borders of local jurisdiction as well as of jurisdiction referring to state archives, tax offices, state forest agencies, regional water management, and similar) and their integration with spatial data. Distribution of these data and accompanying services, such as searching, processing, browsing and downloading data are going to be available by means of the [geoportal.gov.pl](http://geoportal.gov.pl) portal and other public systems. Completion is planned for December 31, 2012.

## 2.3 Geoportal 2

The Geoportal 2 project is the continuation of the [geoportal.gov.pl](http://geoportal.gov.pl) project, the central place for accessing spatial data in accordance with the INSPIRE directive. Services of browsing and detecting spatial data contained within the frame of [geoportal.gov.pl](http://geoportal.gov.pl) are going to be expanded by services for transforming and downloading data. Geoportal 2 is also going to enable access to all data collected within the frame of projects GBDOT and TERYT 2.

Goals of the project:

- To provide cohesion and exchange of spatial data sets and services
- Implement the INSPIRE directive in the field of spatial digital data and produce digital archives of state geodesy and cartography
- Develop and implement safety politics by defining standards of mutual data and metadata usage contained in Geoportal.

It should be mentioned that the project [geoportal.gov.pl](http://geoportal.gov.pl) was selected as the model of the best practice in 2011 in the Report of the European Commission on Access to Public Services. Completion is planned for December 31, 2013.

## 2.4 ISOK project

The ISOK project (IT system for protection of state from emergency risk) is implemented within the frame of the consortium consisting of the Institute for Meteorology and Water Management, GUGiK, State Water Management and Institute for Communication. The project was initiated based on the need to implement the EU Directive on Floods and the large flood which happened in Krakow in 2010.

Goals of the project:

- Establishment of a reference database and preparation of flood risk maps
- Production of DTM using laser scanning technology
- Establishment and implementation of IT system for protection of the country from emergency risks.

GUGiK is responsible for the establishment of a spatial database including DTM. Referring to production of DTM, the entire Poland is covered by DTM with the accuracy of 1.5 m. This was not sufficient for the performance of the project. It was therefore decided that a new DTM with an accuracy of 0.1 m for 65% of the Poland territory (204 000 km<sup>2</sup>) has to be made by means of laser scanning with a density of 4.6 points/m<sup>2</sup>, i.e. 12 points/m<sup>2</sup> in cities. The survey is being performed by 6 international companies and aerial images of high resolution are also being produced at the same time. Quality control of work and products is also executed by external companies. Altogether 12 employees of GUGiK participate in the project management. There is a great interest in the results of the project and it is therefore planned to survey the whole territory of Poland using this method by 2016.

## 3 Other Projects Co-financed from EU Funds

An important project completed in 2008 was the Implementation of GNSS network in Poland (ASG EUPOS). Ninety-eight GNSS stations were established in the country and data exchange was provided for 21 stations of neighbouring countries.

Some of the projects GUGiK is working on with its partners are as follows:

- Twinning project Improvement of cadastral system in Jordan in collaboration with Lantmäteriet from Sweden as the project holder
- NATURE-SDIplus project – Best Practice Network for SDI in Nature Conservation
- EUROPEAN LOCATION FRAMEWORK (E.L.F.) in collaboration with Statens Kartverk from Norway.

Concerning proposals of research and development programmes FP7, CIP, EURAXESS of the European Union, the National Contact Point – Research and Development EU Programmes was developed for user coordination, promotion and support, as well as 10 regional centres and 23 thematic contact points. They all offer support services to users (state, education, private) completely free of charge.

## 4 Conclusion

Poland managed to realise projects worth almost 100 million Euro between 2007 and 2013. The basic presumption is organisation and a sufficient number of employees working on preparation, monitoring and surveillance of project implementation, i.e. on making these activities as one of the priorities, on educating employees for preparation and implementation of projects, planning and preparation of high-quality project documentation and on preparing national strategy documents. Although they were successful, they also faced some obstacles and difficulties in project implementation, e.g. planning, language barriers, experiences in project management, complex procedures and relation between obtained and invested resources. More information about the activities of GUGiK can be found on the web page [www.gugik.gov.pl](http://www.gugik.gov.pl).

Sanja Zekušić, Marjan Marjanović, Saša Cvitković ■

geoportal.gov.pl i druge sustave državne uprave. Aktivnosti projekta TERYT 2 obuhvaćaju izgradnju, prikupljanje, ažuriranje i razmjenu podataka u nadležnosti državne uprave, koji su vezani uz teritorijalnu podjelu zemlje (granice teritorijalnog ustroja države, granice za potrebe službene statistike, granice nadležnosti sudova i tužiteljstva, granice luka i marina, morska obala, granice mjesne nadležnosti i nadležnosti kao što su državne arhive, porezni uredi, uprave državnih šuma, regionalnog vodnoga gospodarstva i sl.) i njihovu integraciju s prostornim podacima. Dijeljenje tih podataka i prateće usluge, kao što su pretraživanje, obrada, pregledavanje i preuzimanje podataka, provest će se preko web portala geoportal.gov.pl i drugih javnih sustava. Predviđeni rok završetka je 31. 12. 2012. godine.

### 2.3. Geoportal 2

Projekt Geoportal 2 nastavak je projekta geoportal.gov.pl kao središnjeg mjesta za pristup prostornim podacima u Poljskoj sukladno INSPIRE direktivi. Usluge pregleda i otkrivanja prostornih podataka sadržane u geoportal.gov.pl, proširit će se uslugama za transformaciju i preuzimanje podataka. Geoportal 2 omogućit će pristup i svim podacima prikupljenim u okviru projekata GBDOT i TERYT 2.

Ciljevi projekta:

- osigurati jedinstvenost i razmjenu setova prostornih podataka i usluga
- provedba INSPIRE direktive u području prostornih digitalnih podataka i stvaranje digitalne arhive državne geodezije i kartografije
- razvoj i provedba sigurnosne politike definiranjem standarda zajedničkoga korištenja podataka i metapodataka koji se nalaze u Geoportalu.

Zanimljivo je napomenuti da je projekt geoportal.gov.pl izabran kao model najbolje prakse u 2011. godini u Izvješću Europske komisije o pristupu javnim uslugama preko interneta. Predviđeni rok završetka je 31. 12. 2013.

### 2.4. Projekt ISOK

Projekt ISOK (IT-sustav za zaštitu države od izvanredne opasnosti) implementiran je u okviru konzorcija koji čine Institut za meteorologiju i upravljanje vodama, GUGiK, Državna uprava za vode i Institut za komunikaciju. Projekt je iniciran potrebom za implementaciju direktive EU-a o poplavama i velikom poplavom što se dogodila u Krakovu 2010. godine.

Ciljevi projekta:

- izgradnja referentne baze podataka i priprema karata opasnosti od poplava i karata rizika od poplava
- izrada DTM-a pomoću tehnologije laserskog skeniranja iz zraka
- izrada i implementacija IT-sustava za zaštitu zemlje od izvanrednih opasnosti.

Izrada prostornih baza podataka uključujući i DTM u nadležnosti je GUGiK-a. Vezano uz izradu DTM-a, cijela

Poljska je pokrivena DTM-om točnosti 1,5 m, što nije bila dovoljna točnost za provedbu projekta. Stoga je odlučeno izraditi novi DTM visinske točnosti 0,1 m za 65% teritorija Poljske (204 000 km<sup>2</sup>) laserskim skeniranjem gustoće 4–6 točaka/m<sup>2</sup>, odnosno 12 točaka/m<sup>2</sup> u gradovima. Snimanje izvodi 6 međunarodnih tvrtki, a u isto doba prikupljaju se i aerofotogrametrijske snimke visoke rezolucije. Kontrolu kvalitete izvođenja radova i proizvoda također obavljaju inozemne tvrtke. Ukupno 12 djelatnika GUGiK-a sudjeluje na upravljanju tim projektom. Interes za rezultate projekta je velik, stoga se planira do 2016. godine cjelokupan teritorij Poljske snimiti tom metodom.

### 3. Ostali projekti sufinancirani iz fondova EU

Značajan projekt, koji je završen 2008. godine, bio je Implementacija GNSS-mreže u Poljskoj (ASG EUPOS). U okviru projekta uspostavljeno je 98 GNSS-stanica u zemlji i omogućena razmjena podataka za 21 stanicu susjednih zemalja.

Neki od projekata koje GUGiK provodi sa svojim partnerima su sljedeći:

- združeni (twinning) projekt "Poboljšanje katastarskog sustava u Jordanu" u suradnji s Lantmäterietom iz Švedske kao nositeljem projekta
- NATURE-SDIplus project – Best Practice Network for SDI in Nature Conservation
- EUROPEAN LOCATION FRAMEWORK (E.L.F.) u suradnji sa Statens Kartverket iz Norveške.

Vezano uz predlaganje istraživačkih i razvojnih programa iz programa FP7, CIP, EURAXESS Europske unije, osnovana je Nacionalna kontaktna točka (National Contact Point – Research and Development EU Programmes) za koordinaciju, promociju i podršku korisnika te 10 regionalnih centara i 23 tematske kontaktne točke. Svi pružaju uslugu podrške korisnicima (državni, obrazovni, privatni) potpuno besplatno.

### 4. Zaključak

Poljska je u razdoblju od 2007. do 2013. godine uspjela realizirati projekte u vrijednosti od gotovo 100 milijuna eura. Osnovni preduvjet je organizacija i dovoljan broj djelatnika koji se bave pripremom, praćenjem i nadzorom izvršavanja projekata odnosno postavljanjem tih aktivnosti kao jedan od prioriteta, edukacija djelatnika za pripremu i provođenje projekata, planiranje i izrada kvalitetne projektne dokumentacije i izrada dokumenta nacionalne strategije. Iako uspješni, i oni su naišli na mnoge zapreke i poteškoće u realizaciji projekata, npr. planiranje, jezične barijere, iskustvo u upravljanju projektima, složeni postupci i trajanje nadmetanja, birokratske procedure i odnos dobivenog i uloženog. Više informacija o djelatnosti GUGiK-a može se naći na web stranici: [www.gugik.gov.pl](http://www.gugik.gov.pl).

Sanja Zekušić, Marjan Marjanović, Saša Cvitković ■