GIS-scene in the Slovak Republic

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Main facts

- Official Country Name: Slovenska Republika (The Slovak Republic)
- Area: 49 033 square kilometers (18,927 sq miles), Population: 5 379 455 (2004), Population density: 107.5/sq.km
- Geographic boundary coordinates: Patince (47 43' 55" of the North Latitude), Oravska Polhora (49 36' 54" of the North Latitude), Zahorska Ves (16 50' 04" of the East Longitude), Nova Sedlica (22 34' 20" of the East Longitude)
- Maximum length: 428 km (Zahorska Ves - Nova Sedlica)
- Maximum width: 195 km (Sturovo - Skalite)
- Elevation above sea level: 95 m (Bodrog) - 2656 m (Gerlach)
- Nationalities: Slovak (85.6%), Hungarian (10.8%), Romany (1.8%), Czech (1.2%), Ruthenian (0.3%), Ukrainian (0.3%), German (0.1%), Polish (0.1%),Other (0.2%)
- Religion: Roman-Catholic (60.3%), Greek-Catholic (3.4%), Protestant (6.2%), Reformist (1.6%), Orthodox (0.6%), Without any confession (9.7%),No data (18.2%)
- Capital: Bratislava (Population 446,700)
- Bordering countries: Austria, Czech Republic, Hungary, Poland, The Ukraine

- Gross National Product (GNP): 29 294 mil. eur (2005)
- GNI per capita: 11 900 eur (2005)
- Unemployment rate: 13,25 % (január 2005)
- Inflation rate: 7,4 % (2004)

Content of the presentation

- GIS history in Slovakia
- Recent shift to NSDI
- The role of the public sector
- GIS data available from public authorities
- Public awareness
- GIS education
- GIS scientific associations and related events
- GIS on enterprise level
- Main private actors on the GIS market

Official documents of the government policy related to Information Society

(since 1990)

- **National plan for informatics**
  - approved by the Slovak government during the former Czecho-Slovakia in June 1992 - never implemented
- **Concept of Communications Development in the Slovak Republic (1993-2000)** - approved in August 1993
- **State Telecom policy 1996-2000** – approved in December 1995
- **National Plan of Regional Development** – approved in March 2001
- **State Telecom policy 2000-2002** – approved in June 2000
- **State IS policy** – approved in June 2001
- **State Telecom policy 2003** – approved in March 2003
- **National Development Plan** – draft approved in March 2003
- **National Strategy for IS (incl. Action Plan for IS)** – approved in January 2004

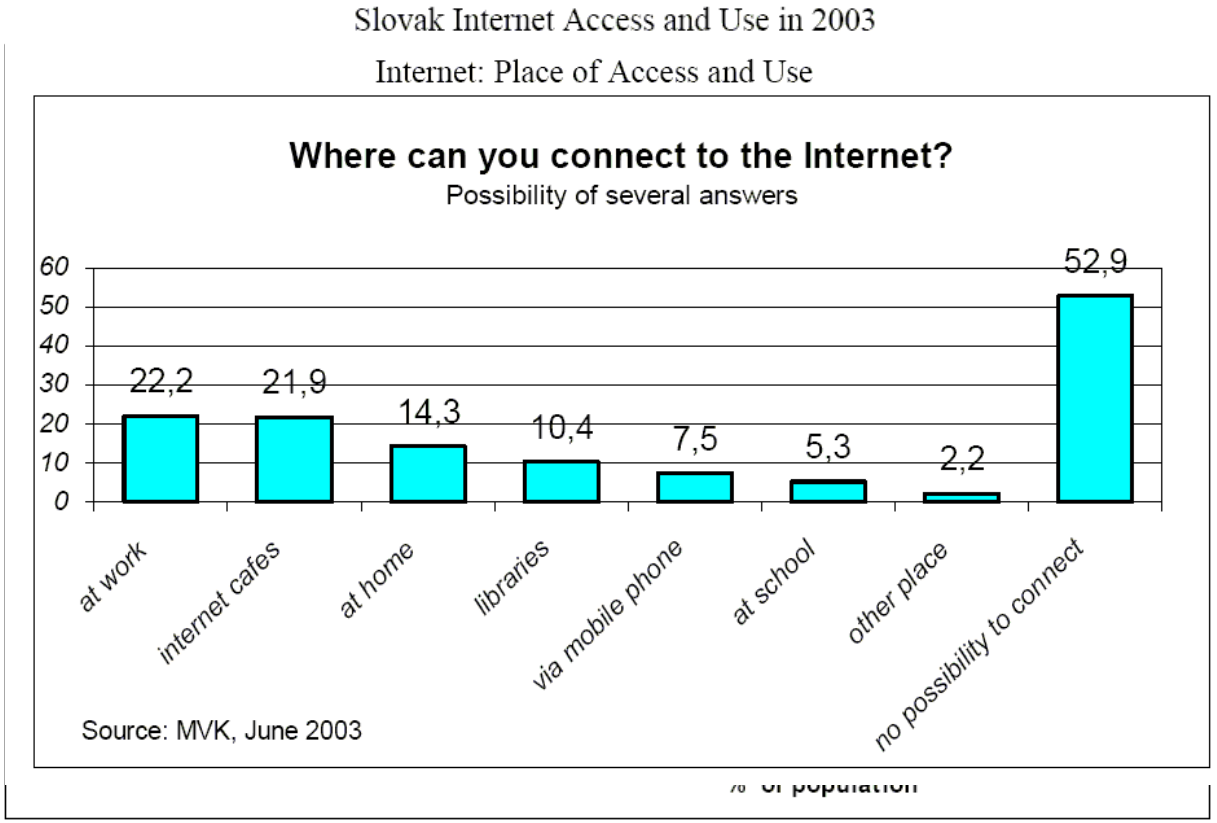
Evolution of IS-related Institutional Framework

- **1990-1992**: competencies on the former federal level of the former Czecho-Slovakia
- **1993-1998**: **Statistical Office** (general informatics), Ministry of Transport, Posts, and Telecommunications (telecom policy and regulations), Ministry of Economy (ICT industry), Government Office (informatics of state administrations), Office for the Strategy of Development of Society, Science, and Technology (information society dimensions, operated between 1997 and mid-1999)
- **1999-2000**: **Ministry of Transport, Posts, and Telecommunications** (telecom policy and regulations, general informatics), Government Office (informatics of state administrations), Ministry of Economy (ICT industry)
- **2000-2003**: **Ministry of Education** (information society), Ministry of Transport, Posts, and Telecommunications (telecom policy), Telecommunication Office (regulation), Ministry of Economy (ICT industry), Government Office (informatics of state administrations), National Security Office (e-signature)
- **2003: Ministry of Transport, Posts and Telecommunications** (telecom policy and information society), Telecommunication Office (regulation), Ministry of Economy (ICT industry), Government Office (informatics of the state administration), National Security

Evolution of IS-related Institutional Framework (2)

- **Information Society (IS) in the Slovak Republic**
  June 2001 : Slovak Government has adopted Resolution No. 522/2001 (Ministry of Education)
  period 1990-2002: permanent changes of competencies, failure of strategic documents, lack of a public debate on IS
- **National Strategy for IS** - Action Plan / program eEurope+
  February 2002 > on 2002-2005 > outlook to 2010
- **Government strategy towards IS and Action plan to implement eEurope+ activities**
  (Three different versions of this document were prepared in 2001 – 2003)
  The version approved by the government in **January 2004** includes the following priorities:
  - creating a fully competitive environment within the info-communication infrastructure and services sector
  - improving communication of public administration with citizens and business through e-government,
  - education to take advantage of IS opportunities,
  - facilitating e-commerce and e-business development
  - stimulating IT research and development and commercial applications
  - providing a secure and trust-conducive digital environment

Monitored indicators *(eEurope Action Plans)*



Source: MVK (June, 2003)

Informatization of Public Administration - Starting points

- **Legislation**
  - The Act No. 261/1995 on the National Information System
  - The Act on Geodesy and Cartography, the Cadastre Act
- **Integration tools**
  standards, methodology, the basic registers of the Public Administration
- **Public Administration reformation**
  the decentralization of competences to the public administrations at the local level
- **Harmonization and coordination of common steps**
  A guarantor: the Ministry of Interrior
  Plan of Actions: a portfolio of assignments and projects

National Spatial Data Infrastructure (NSDI)

- **GI Actors and Capacities**
  - The main governmental GI actors: the Geodesy, Cartography and Cadastre Office of the Slovak Republic (GCCA), the Ministry of Defence, the Ministry of Environment, the Ministry of Agriculture
  - On the lower level the GI actors
    Local Governments, Utilities management companies, Associations for digital maps, private companies and the Slovak Association for Geoinformatics (SAGI).
- **Strengths**
  - Well-developed GIS education: geodesy, cartography, remote sensing, computer science
  - Skilled and qualified experts in the field of GIS
- **Weaknesses**
  - The need for better NSDI co-ordination, non-compatible geographic data sets
  - Different civil and military co-ordinate systems
  - Limited geographic data exchange and market, and financing

Important steps of the NSDI development in Slovakia

- **To complete a georeference base for creation and use of GI in Slovakia**
- **Harmonization and acceleration of the creation of state geographic databases and catalogues:**
  (Cadastre of Real Estate Information System, new geodetic and network reference system, Slovak spatial and observation system for the GIS development, the basis of the the Central Spatial Database, seamless digital ortophotomap,...)
- **Specification of the NSDI actors and the tasks of the strategy**
- **Creation of central metainformatic systems on geodata sources from the area of Slovakia**
- **Establishment of the geodata services and conditions** (building the market)
  (centres to acquire and exchange GI information, Web Map Servers, geoportals, applications)
- **Iniciation of (non)formal platforms aimed at the development of GI and GIT**
- **Creation of conditions for the public administration and private sector more active participation on the government information policy**
- **To apply the experience from the NSDI creation gained in ČR (NEMOFÓRUM, ÚVIS, ...)**
- **Workshops enhancing knowledge and experience from the GIS and GI creation**
- **Geoinformatic education and training**

Institutions involved in NSDI creation

- **Geodesy, Cartography and Cadastre Authority of the Slovak Republic (GCCA)**

  Enthrusted by NSDI-related tasks and projects:
  - The technological securing of the development of the cadastre and providing the cadastral data via Internet in the framework of the Automated Information System of the Geodesy, Cartography and Cadastre (AIS-GCC)
  - the legislative and technical assumptions for the creation of the Primary Data Base for the Geographic Information System (PD GIS)
  - the creation of the 3-D digital relief model as a localization base for GIS in the public administration in accord with the standards and principles of the European Spatial Data Infrastructure (ESDI) creation
  - to work out and issue the standards of the geo-referenced base for the National Spatial Data Infrastructure (NSDI) as well as for the catalogue of the objects

  http://www.geodesz.gov.sk, http://www.gku.sk/

Other main actors

- **The Slovak Environmental Agency (SEA)** http://www.sazp.sk/index_en.html
- **Ministry of Agriculture** http://www.lesoprojekt.sk/english/default.htm
- **Ministry of Defence**, the Topographic Institute in Banska Bystrica http://topu.army.sk/
- … **other ministries** (see http://www.vlada.sk)

Reference data and core thematic data *available from public authorities* ***(1)***

- ***Large-scale Maps & Geodatasets***
  - maps at scales of 1:1.000, 1:2.000, 1:5.000 and in fathom scales, created for the purposes of the real estate cadastre
  - the vector map of stated documentations have been made and subsequently kept (abut 70% of cadastral districts were processed)
- ***Medium-scale Maps & Geodatasets***
  - *Basic Map of the Slovak Republic 1:10 000 (ZM10)*

  Made by updating the 1:10 000 topographic map published before 1971 in S-42. first edition published in the period 1972-1986. From 1987, systematic revision using aerial photos. Available raster sets (total 2,820 map sheets) updated in the year 2000.
  - Map of the administrative dividing (*MSR10*)

  created from the map print base of ZM10. Is in line with the current administrative units. *Basic - Map of the Slovak Republic 1:25.000 (ZM25)*
  Derived from ZM10. The first edition in 1973. Only 83% of the map sheets have been published.
  - *Basic Map of the Slovak Republic 1:50 000 (ZM50)*

  Made by cartographic re-editing of the previous map series published in S-42. First edition in 1970 -1971. Coveres the whole territory. Available as a colour copy (plotted) or in digital raster form. 134 map sheets ....

Reference data and core thematic data *available from public authorities* ***(2)***

....

- Seamless Vector Map 50
The spatial object-oriented DB, created by vectorizing the scanned print bases of ZM50 in the Arc/Info environment. Features separated into 52 levels. In 2000 the layer of the administrative divisin updated.
- Basic Maps in lower scales (1:100.000, 1:200.000)
scaled - down version of ZM50

- ***Small-scale Maps & Geodatasets***
  - Basic Map of the Slovak Republic 1:500.000 and the Basic map of the Slovak Republic 1:1.000.000.
  - Map of the administrative division at scales of 1:400.000 and 1:1.000.000 and maps of the administrative division of the Slovak Republic at scales of 1:400.000 and 1:1.000.000.
- ***The Primary Database for the Geographic Information System*** created as a spatial object-oriented database in ETRS 89 and EVRS 2000 with the level of detail corresponding to ZM10. Evaluation of aerial survey photos using digital photogrammetry and filling up basic attribute database. The creation digital vector planimetric component started in 2003. This reference data will form the core of the National Spatial Infrastructure.

Reference data and core thematic data *available from public authorities* ***(3)***

- ***The Primary Database for the Geographic Information System*** created as a spatial object-oriented database in ETRS 89 and EVRS 2000 with the level of detail corresponding to ZM10. Evaluation of aerial survey photos using digital photogrammetry and filling up basic attribute database. The creation digital vector planimetric component started in 2003. This reference data will form the core of the National Spatial Infrastructure.
- **Digital model of the relief of Slovakia** creation using vectorization of print bases of the altimetry component of the map 1:10.000 in cooperation with the SR Army is ongoing.
- **Seamless Administrative Boundaries of Europe** (SABE) vector database of administrative boundaries in Europe includes the boundaries of administrative units with identifiers, names and information on hierarchical level. Created within the framework of international cooperation with the EuroGeographics.
- ***The high quality forestry maps*** forest stand maps in scale 1 : 10 000, and updated simultaneously with forest management plan, renewal every ten years, the basis of Slovak forestry mapping.

The source: **Geodetický a kartografický ústav Bratislava (GKÚ)**
(Geodetic and Cartographic Innstitute Bratislava) http://www.gku.sk/
Lesy Slovenskej republiky, š.p. (Forests of the SR) http://www.lesy.sk/

Other public institutions dealing with GIS data

- **Inštitút informatiky a štatistiky (INFOSTAT)**
  Institute of Informatics and statistics
  http://www.infostat.sk/
- **Lesy Slovenskej republiky, š.p.**
  Forests of the Slovak Republic http://www.lesy.sk/
- **Slovenská správa ciest**
  Slovak Road Administration http://www.ssc.sk/
- **Štátna ochrana prírody SR (ŠOP SR)**
  State Natural Protection of Slovak Republic http://www.sopsr.sk/
- **Štatistický úrad SR**
  Statistical Office of The Slovak Republic http://www.statistics.sk/
- Štátny geologický ústav Dionýza Štúra (ŠGÚDŠ)
  State Geological Institute of Dionyz Štúr http://www.geology.sk/

Public awareness

A long term absence of the common comprehensive vision, permanent changes of competencies, failure of a strategic documents, lack of the support of the information society resulted in limited knowledge and acceptance of ICT in public:

- public debate on IS — no
- domestic information sources — limited
- domestic professional literature and periodic publications — no

GIS in education and research
(institutions listed in alphabetic order)

In the Slovak Republic, the educational aspects regarding GI are felt to be important. Additionally, Slovak universities are very active in the GI research and education. The result is well-developed GIS education and research infrastructure:

- **Fakulta elektrotechniky a informatiky TU v Košiciach**
  Faculty of Electrical Engineering and Informatics, Technical University of Košice
  http://www.fei.tuke.sk/
- **Fakulta matematiky, fyziky a informatiky Univerzity Komenského v Bratislave**
  Faculty of Mathematics, Physics and Informatics Comenius University, Bratislava
  http://www.fmph.uniba.sk/
- **Fakulta prevádzky a ekonomiky dopravy a spojov Žilinskej univerzity**
  Faculty of Operation and Economics of Transport and Communications, University of Žilina
  http://fpedas.utc.sk/
- **Fakulta prírodných vied Univerzity Konštantína Filozofa v Nitre**
  Faculty of Natural Sciences, Constantine the Philosopher University in Nitra
  http://www.fpv.ukf.sk/
- **Fakulta riadenia a informatiky Žilinskej univerzity**
  Faculty of Management Science and Informatics, University of Žilina
  http://www.fri.utc.sk
- **Fakulta záhradníctva a krajinného inžinierstva (FZKI) SPU v Nitre**
  Horticulture and Landscape Engineering Faculty, Slovak University of Agriculture in Nitra
  http://fzki.uniag.sk/
- **Lesnícka fakulta Technickej univerzity Zvolen**
  The Faculty of Forestry, Technical University Zvolen
  http://www.tuzvo.sk/
- **Prírodovedecká fakulta Univerzity Komenského, Bratislava**
  Faculty of Natural Sciences, Comenius University, Bratislava
  http://www.fns.uniba.sk/

GIS and scientific associations

The Slovak Association for Geoinformatics (SAGI) could serve as an example of the non-governmental organisation whose mission is to support the use and the development of the geographic information including GIS in the Slovak Republic.

Several national seminars are organised in the GI technology and applications every year by the scientific associations.

Slovak Association for Geoinformatics (SAGI) http://www.sagi.sk

ITAPA http://www.itapa.sk/

GIS on enterprise level

On the other hand the demand from the side of commercial GIS users and involvement of specialized private companies in a significant number of GIS projects resulted in:

- Skilled and qualified experts in the field of GIS
- Experiences based on projects and systems implemented

Recent state policy encourages the private sector actors in participation in building the NSDI .

Main private actors on the GIS market

GIS tools

- ArcGEO Information Systems spol. s r.o. http://www.arcgeo.sk/
- GAMO a.s. http://www.gamo.sk/
- Sféra, a.s. http://www.sfera-as.sk/
- CORA GEO, s.r.o. http://www.corageo.sk/
- ESPRIT, s.r.o. http://www.esprit-bs.sk/
- Mgr. Roman Chovanec – e MAP http://www.emap.sk/

Main private actors on the GIS market (2)

GIS data

1. ArcGEO Information Systems spol. s r.o. http://www.arcgeo.sk/
2. CORA GEO, s.r.o. http://www.corageo.sk/
3. ErasData-Pro, spol. s r.o. http://www.erasdatapro.sk/
4. EUROSENSE s.r.o., http://www.eurosense.sk/
5. GEODIS Slovakia s.r.o. http://www.geodis.sk/
6. Geomatika SK, s.r.o. http://www.geomatika.sk/
7. GeoModel s.r.o. http://www.geomodel.sk/
8. GIS- SERVICES s.r.o. http://www.gis-services.sk/
9. Mapa Slovakia s.r.o. http://www.mapa.sk/
10. Progres CAD Engineering s.r.o. http://www.pce.sk/

Main private actors on the GIS market (3)

GIS services

1. CORA GEO, s.r.o. http://www.corageo.sk/
2. DATALOGIC, SPOL. S R. O. http://www.datalogic-pd.sk/
3. ErasData-Pro, spol. s r.o. http://www.erasdatapro.sk/
4. ESPRIT, s.r.o. http://www.esprit-bs.sk/
5. GAMO a.s. http://www.gamo.sk/
6. GeoModel s.r.o. http://www.geomodel.sk/
7. GIS- SERVICES s.r.o. http://www.gis-services.sk/
8. Mgr. Roman Chovanec – e MAP http://www.emap.sk/
9. Progres CAD Engineering s.r.o. http://www.pce.sk/
10. YMS, a.s., Trnava http://www.yms.sk/

Thank for your attention

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