Combining Cadastre of Real Estate with GIS Data - A Contribution to Sustainability

Vaclav SLABOCH, Czech Republic

Key words: Cadastre Maps, GIS, Sustainability.

SUMMARY

Cadastre of real estates is one of basic geodata sources in almost every country around the world. Spatial information, which is undoubtedly hidden in cadastral data (both graphical and attributive), still wait for more frequent usage in Geographic Information Systems. On the other hand the modern GIS dispose the most advanced methods of data storage, analyses and visualisation techniques.

There is a new paradigm in the world of geoinformatics - interoperability of data and systems – which could provide us with new possibilities of a sustainable way of Cadastre modernisation and at the same time make of GIS a more reliable tool for managemnt. Cadastral data that are usually collected, updated and stored at one place could thus find multiple use. In our paper we will be searching for possibilities of cadastral data and geoinformation system combination with some practical examples.

Combining Cadastre of Real Estate with GIS Data - A Contribution to Sustainability

Vaclav SLABOCH, Czech Republic

1. INTRODUCTION

Cadastre of real estates is one of basic geodata sources in almost every country around the world. Spatial information, which is undoubtedly hidden in cadastral data (both graphical and attributive), still wait for more frequent usage in Geographic Information Systems. On the other hand the modern GIS dispose the most advanced methods of data storage, analyses and visualisation techniques.

There is a new paradigm in the world of geoinformatics - interoperability of data and systems – which could provide us with new possibilities of a sustainable way of Cadastre modernisation and at the same time make of GIS a more reliable tool for managemnt. Cadastral data that are usually collected, updated and stored at one place could thus find multiple use. In our paper we will be searching for possibilities of cadastral data and geoinformation system combination with some practical examples.

Examples of the recent applications which might be useful for promotion of sustainability in urban and rural areas of West Africa:
- GIS for flooded areas and crisis management
- GIS for rural land consolidation
- GIS for national heritage
- GIS for town and rural facility networks (energy, communication, services, etc.)

Problems to be solved when combining cadastral with other data with a special consideration to specific conditions of countries in transition.

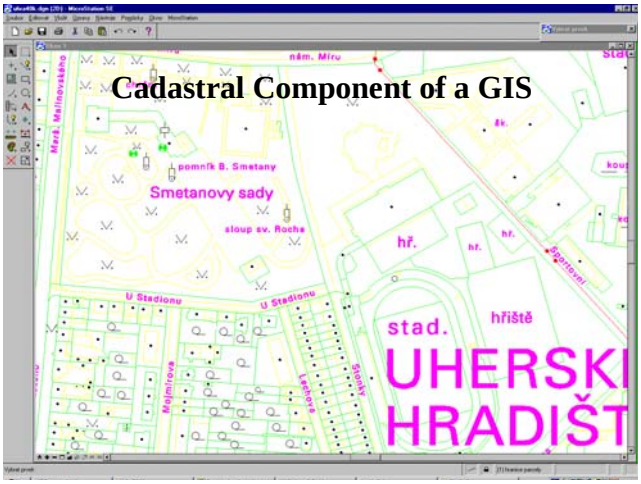
2. ADVANTAGES OF COMBINING CADASTRE WITH GIS

Some advantages of Cadastre of Real Estate as a special kind of GIS:

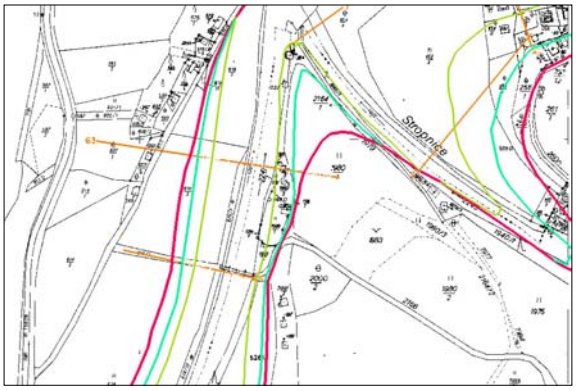
- Correspopndence of descriptive and graphical data
- Representation of land parcels
- Cadastral system as a special kind of GIS (represents position, ownership, land use etc.)
- Unified graphical quality
- Continuous updating assured by the Law

3. SOME PRACTICAL APLLICATIONS

Examples of the recent applications which might be useful for promotion of sustainability in urban and rural areas of Africa:

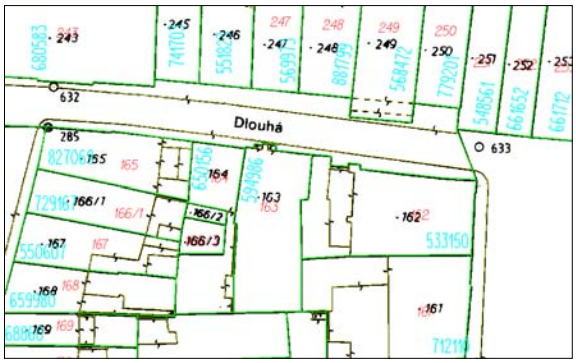


- GIS for flooded areas and crisis management



Inundation lines for 5, 20 and 100 years flooding with cadastral map

- GIS for rural land consolidation



Cadastral data on digital cadastral map - digitized

- GIS for national heritage

Vector cadastral map on historic cadastral raster map

- GIS for town and rural facility networks (energy, communication, services, etc.)

4. PROBLEMS TO BE SOLVED

Problems to be solved when combining cadastral data with data of othe GIS with a special consideration to specific conditions of countries in transition.

The main problem is the different quality of maps available:
- diffrent digree of accuracy
- diffrent projections
- different co-ordinate systems
- incompatibility of direct and inderect positioning
- FAQ: How a digital or dogitised cadastral map can become a basis for a GIS?

REFERENCES

ÖSTERGARD, Niels and team, 1991. Sustainable Development – A Challange and Responsibolity for Surveyors. FIG Publications No. 3, FIG Bureau.

RIDDEL, James and team, 1994. FAO and FIG Future Collaboration in Cdastral Reform in Rural Economies in Transition. Report of the Round Table Meeting XX FIG Congress Melbourne, Australia, 4 March 1994. FIG Publication No. 10, FIG Bureau.

ÖSTERBERG, Tommy and team, 1995. The FIG Statement on the Cadastre. FIG Publications No. 11, FIG Bureau.

LACROUX, Sylvie and team, 1995. Land Tenure, Land Management and Land Information Systems. FIG Publication No. 13.

KAUFMANN, Jürg, STEUDLER, Daniel and team, 1998. Cadastre 20014 a Vision for Future Cadstrel System. FIG Working Group 1, Commission 7.

WILLIAMSON, Ian and teaqm, 1999. Co-opearation between FIG and the un Agencies 200 – 2003. Report of the FIG/UN Roundtable Melbourne, Australia, 1999. FIG Publication No. 22, FIG Beureau.

SLABOCH, Vaclav and PESL, Ivan, 2002. Ten Years of Cadastral Reform in the Czech Republic: From defective cadastre to Internet access to reliable cadastral and land registry data. FIG Congress in Washington, 2002.

SLABOCH, Vaclav and HNOJIL, Josef, 2002. Does any real European SDI exist? The practical approach. EU GI&GIS Workshop, Dublin.

SLABOCH, Vaclav, VANIS, Pavel and team, 2003. Possibilities of Cadastre of Real Estates in the World of Interoperability. Poster for a panel Discussion at the EU GI&GIS Workshop, La Coruna, Spain, 2003.

SLABOCH, Vaclav and PASEK, Oldrich, 2003. Governmental Spatial Data Supporting National Development. 3rd International Conference Digital Earth, Brno 2003.

BIOGRAPHICAL NOTES

Václav SLABOCH, MSc. PhD.
Director of Research Institute of Geodesy, Topography and Cartography (VUGTK) in Prague, Vice-Chairman of the Czech Union of Surveyors and Cartographers, member of the FIG Commission Revision Group (CRG). Studied geodetic surveying at the Czech Technical University in Prague, 1968 –1969 employed with Fairey Surveys Ltd., U.K and later at the department of informatics of the Research Institute for Geodesy, Topography and Cartography in Prague and at the Czech Office for Surveying, Mapping and Cadastre. 1979 - 1981recruited as a consultant for a UNDP cartographic project in Guinea, West Africa, and 1990 - 1995 by the Government of Malta. Member of the EuroGeographics Expert Group on Quality (EGQ), teacher of Engineering Surveying at the Department of Special Geodesy of the Czech Technical University in Prague

CONTACTS

Václav Slaboch, MSc. PhD.
Research Institite odf Geodesy, Topography and Cartography (VUGTK)
CZ – 250 66 Zdiby 98
Zdiby – Prague East
CZECH REPUBLIC
Tel. + 420 284 890 907
Fax + 420 284 890 351
Email: Vaclav.Slaboch@vugtk.cz
Web site: htt://www.vugtk.cz