

# The cadastral data and standards based on XML in Poland

Jarosław Bydłosz, Piotr Parzych  
AGH University of Science and Technology  
Cracow, Poland

1

## XML

- XML – Extensible Markup Language
- Extensible Markup Language is a metalanguage destined for markup languages defining (The World Wide Web Consortium (W3C) )
- XML itself is the computer language used for designing data formats
- XML is very flexible, so it may be used for writing any data
- With XML we may create and oversee data hierarchical structures.

2

## XML structure

The structure of document must be known to enable its interpretation and meaning

- ❏ XML document structure was previously defined with document type definition (DTD) that contained the definitions of all used elements and structure of XML file.
- ❏ Nowadays, XML Schema Definition becomes more popular
- ❏ XML Schema Definition provides means for defining the structure, content and semantics of XML documents

3

## XML application in Poland in connection with cadastral data

- ❏ The order of the Ministry of Finance on the tax register of real estates
- ❏ XML used for cadastral databases modelling

4

## The order of the Ministry of Finance on the tax register of real estates

- This order defines regulations on real estates tax register managing and the range of its information
- The order includes XML schema file containing the structure of tax register data exported file
- Some software enabling tax register data export into XML file has been created

5

## XML application in cadastral databases modelling

- XML has been used for cadastral data modeling in geodatabase creating schema proposed by Perencsik and others [Perencsik, 2004]
- This database creation schema was applied by several researchers in Poland

6

## XML application in cadastral databases modelling

- ❏ The geodatabase containing cadastral data model destined for real estates experts was built. It is described in [Cichociński, 2006] and [Dębińska, 2008]
- ❏ Some chosen cadastral objects (land parcel, building) and relation between were modelled. There are described in [Chojka, 2007]
- ❏ The prices and values register for real estates modeling was made and it is described in [Bydłoz, 2008a,b]

7

## GML

- ❏ GML - Geography Markup Language
- ❏ Geography Markup Language is an XML grammar for expressing geographical features
- ❏ GML serves as a modeling language for geographic systems as well as an open interchange format for geographic transactions on the Internet

8

## GML

- Nowadays, GML is an important tool for geographic data recording or transfer and makes probably the most popular open specification for geographic data presentation
- GML delivers many tools for geographical objects, coordinate systems, geometry, topology, time and units description
- The Technical Committee ISO/TC211 accepted GML version 3.2.1 as ISO 19136: 2007 standard

9

## GML application in cadastral databases modelling

- The method of cadastral database modeling and creation of simplified cadastral database and then land parcel with two buildings situated on data recording in GML is described in [Kmiecik, 2004]
- The cadastral database model was prepared with UML, exported into XML (XMI) and then its conversion to GML was performed. The original project of tool supporting the GML schemas modeling was proposed as well [Kmiecik, 2005]

10

## GML application in cadastral databases modelling

- ❏ The application of model containing some cadastral data (land parcel, building and road) building was presented in [Chojka, 2007]. The database schema was build with UML, then transfer from UML to GML was performed applying UML/INTERLIS-editor and finally generated GML file import into ArcGIS was made.
- ❏ The obtained results were not entirely satisfactory, for the resulting GML model was not complete.

11

## Geoportal and regional portals enabling access to the geographical cadastral data

- ❏ Geoportal ([www.geoportal.gov.pl](http://www.geoportal.gov.pl)) has been created as a response for EU INSPIRE directive
- ❏ One of geoportal layers called “*cadastre*” is planned to contain land parcels and buildings geographical data in the whole Poland
- ❏ There are also some regional portals enabling access to the geographical cadastral data

12

## WFS and WMS

- ❏ The geoportal and other portals giving access to cadastral data via internet use WFS or WMS standards accepted by OpenGIS Consortium
- ❏ The OpenGIS Web Feature Service Interface Standard (WFS) defines an interface for specifying requests for retrieving geographic features across the Web using platform-independent calls
- ❏ The OpenGIS Web Map Service Interface Standard (WMS) provides a simple HTTP interface for requesting geo-registered map images from one or more distributed geospatial databases
- ❏ The WFS specified feature encoding for input and output is the Geography Markup Language (GML), although other encodings may be used

13

## International regulations concerning XML or GML

- ❏ COMMISSION REGULATION (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards Metadata - *XML is mentioned as namespace means a collection of names*
- ❏ 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) - *directive does not directly force using GML but building and developing Infrastructure for Spatial Information in Europe will probably increase GML popularity*
- ❏ GML version 3.2.1 accepted as ISO 19136: 2007 standard

14

## Practical comments

- ❏ According to polish present regulation (except tax register), there is no obligation to use XML or GML
- ❏ However, the software development, especially GIS software, results in increasing number of applications that make use of XML or GML
- ❏ It seems that software development direction is not going to change and works concerning XML or GML applications for cadastral data will continue
- ❏ Authors think that researches on application of XML and GML for cadastral databases modeling should be continued

15