



**Extending ZBGIS<sup>®</sup> content  
with names from cadastral maps  
and names from forest maps**

37. Fachtagung der Vermessungsverwaltungen von Friaul-Julisch Venetien, Kroatien, Österreich, Slowakei, Slowenien, Südtirol, Trentino, der Tschechischen republik und Ungarn

**8 - 10 June 2022**

Martina Behuliaková, Michal Leitman, Dušan Hanus



## Central state administration

- Government
- Ministries (14)
- Central state administration bodies (10)



## Local state administration

- 75 district offices

- Statistical Office
- **Geodesy, Cartography and Cadastre Authority (GCCA)**
- Nuclear Regulatory Authority
- The Industrial Property Office
- Telecommunications Office
- Etc.



# Organisational structure



Direct management in the field of geodesy, cartography and technical activities

**Geodesy, Cartography and Cadastre Authority of the Slovak Republic**

72 employees

Management of state administration in the field of real estate cadastre

**Geodetic and Cartographic Institute Bratislava**

142 employees

**Research Institute of Geodesy and Cartography**

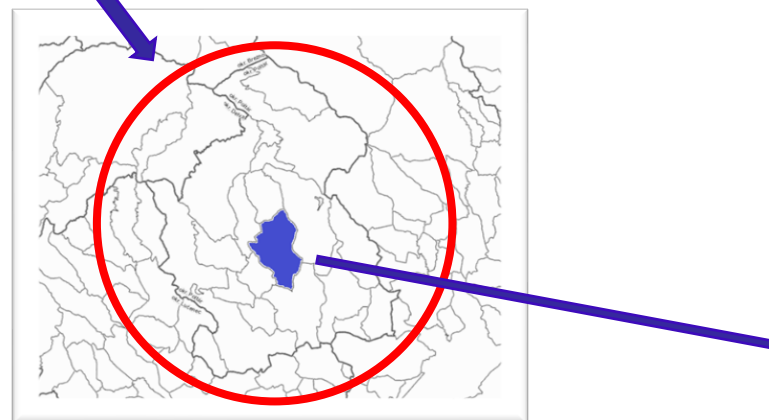
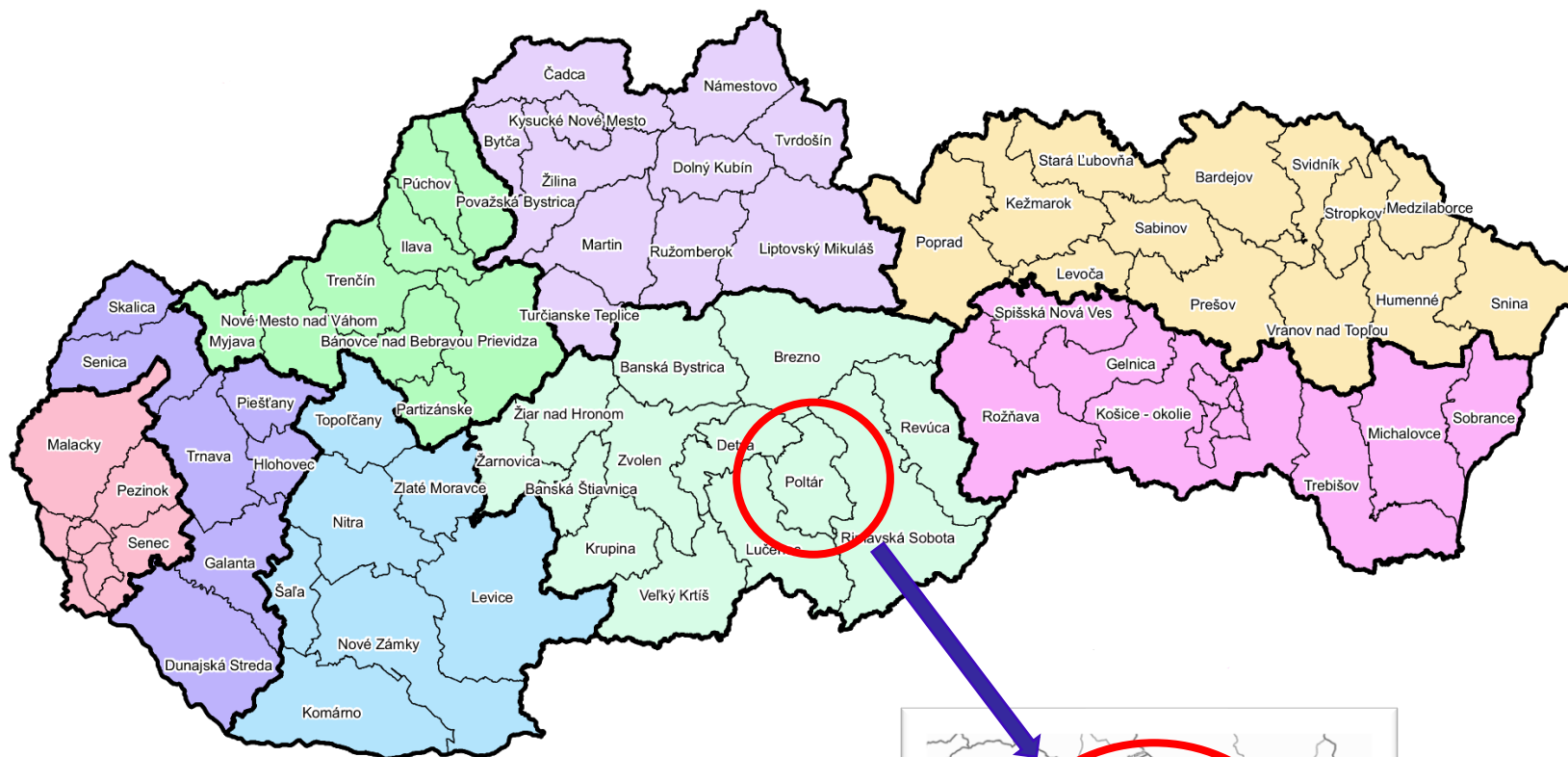
22 employees

**Ministry of Interior**

75 offices

ca 1 800 employees

# Administrative units

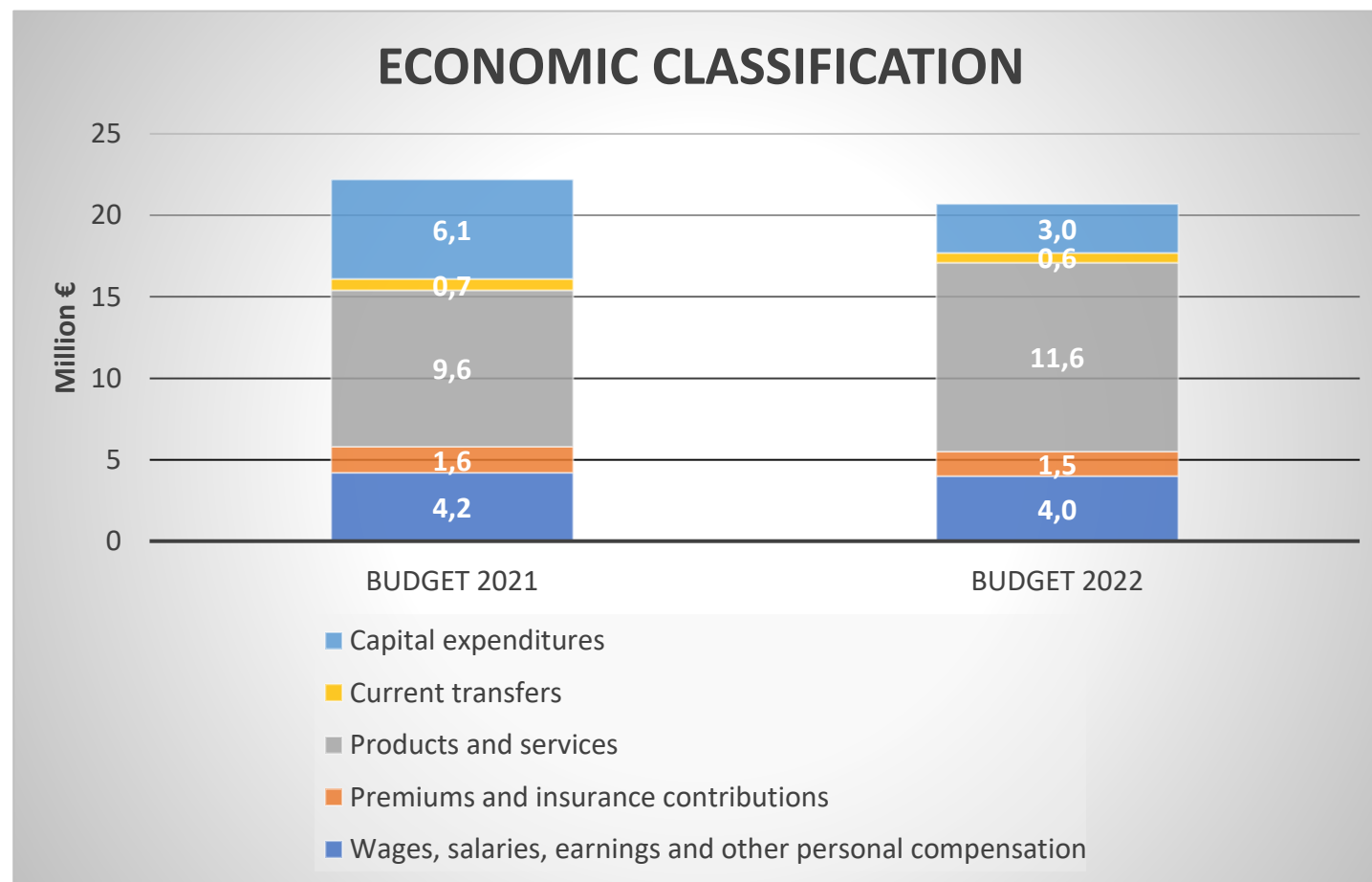


- 8 regions
- 79 districts
- 75 cadastral offices
- 2 927 municipalities
- 3 559 cadastral districts



Geodesy, Cartography and Cadastre Authority of the Slovak Republic is a budgetary organization, whose income and expenditures are connected to the state budget of the Slovak Republic

- 100% state funding
- Budget 2021 - 22.2 mil €
- Budget 2022 - **20.7** mil €
  
- Revenue 2021 - 230 000 €
- Revenue 2022 - 230 000 €





- Act on Geodesy and Cartography
  - Act on Real Estate Cadastre
  - Act on the Chamber of Surveyors
- 



- Act on NSDI
- Act on certain measures for the organization of land ownership
- Act on Information Technologies in Public Administration
- Act on eGovernment
- Act on Free Access to Information

Transposition of Directive 2019/1024  
(Open Data Directive)



# GCCA Main activities



- Reference Systems, Geodetic Control, Metrology
- Real Estate Cadastre
- Topographical Database
- State Maps
- Standardization of Geonames
- Central Map Archive

Úrad geodézie, kartografie a katastra Slovenskej republiky  
VÝPIS Z KATASTRA NEHNUTEJNOSTÍ

Okres: 188 Sereč Dátum vyhotovenia: 24.5.2022  
Obec: 80708 Franka pri Dunaji Čís vyhotovenia: 9.38.32  
Katastrálne územie: 82108 Franka Účel plánu k: 23.5.2022 16:00:00

Výpis je nepoužiteľný na právne účely

VÝPIS Z LISTU VLASTNÍCTVA č. 2076

ČASŤ A: MAJETKOVÁ PODSTATA

Parcely registra „C“ evidované na katastrálnej mape

Parcelné číslo	Výmera v m <sup>2</sup>	Druh pozemku	Spôsob využitia pozemku	Druh obrábanej plochy/rovnosti	Spoločná nehnuteľnosť	Ustanovenie pozemku	Druh priradených výťahov
65497	324	Zastavaná plocha a nádvoria	18			1	1
Na list: Bca zúpna							
65477	310	Záhrada	4			1	1
Na list: Bca zúpna							
65477	164	Zastavaná plocha a nádvoria	15			1	1
Prívrac verah k stavbe signál číslo 1017 evidovanej na pozemku parcelné číslo 654477							
Na list: Bca zúpna							

**Legenda**

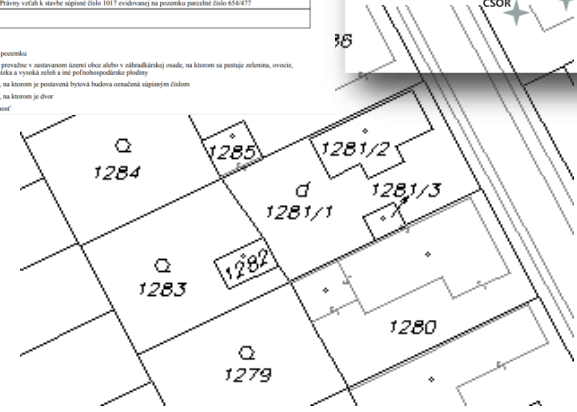
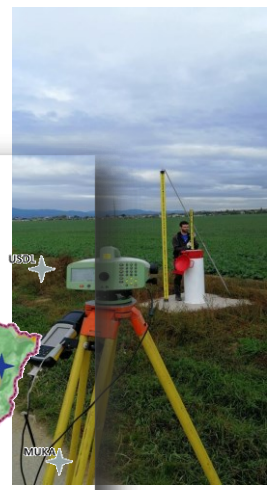
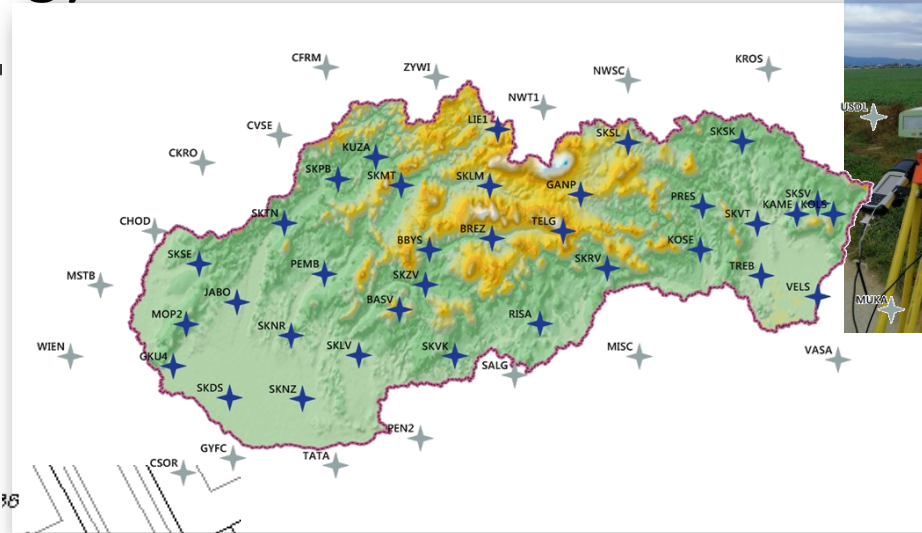
Spôsob využitia pozemku

4 Pozemok prevzatý v zastavanom území alebo v záhradkárskych osadách, na ktorom sa pestuje zelenina, ovocie, okrasná záhrada a vrecká záhrada a nie príslušopodnikárske zariadenia

15 Pozemok, na ktorom je postavená bytová budova označená súpisným číslom

18 Pozemok, na ktorom je dvor

Spoločná nehnuteľnosť





**Basic data base for the geographic information system ZBGIS®** - part of the Information System of Geodesy, Cartography and Cadastre

**ZBGIS®** - spatial object-oriented database that is a **reference basis of the NSDI**

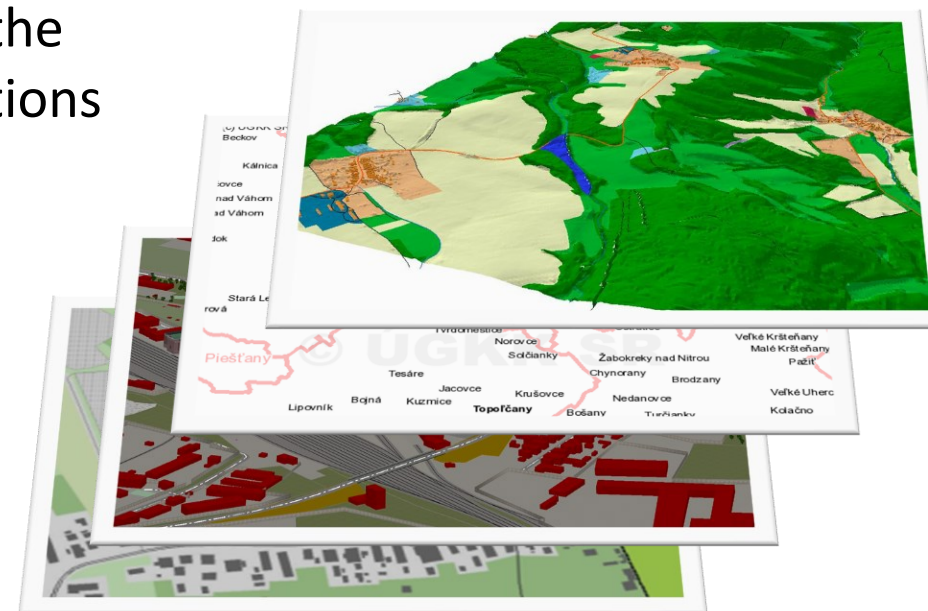
- positional and geometric foundation for creating thematic upgraded geographic information systems
- binding for creating basic and thematic state map series

**ZBGIS®** - consists of data and metadata on spatial features of the country, their spatial and thematic attributes and mutual relations

Scope of data on features managed within **ZBGIS®** is specified by **Feature Catalogue** ([KTO ZBGIS®](#))

(has been standardized on the basis of the international **DIGEST standard**)

Visualization of **ZBGIS®** data - map compositions is available via [Map Client ZBGIS®](#) application





# Web Applications and Map Services

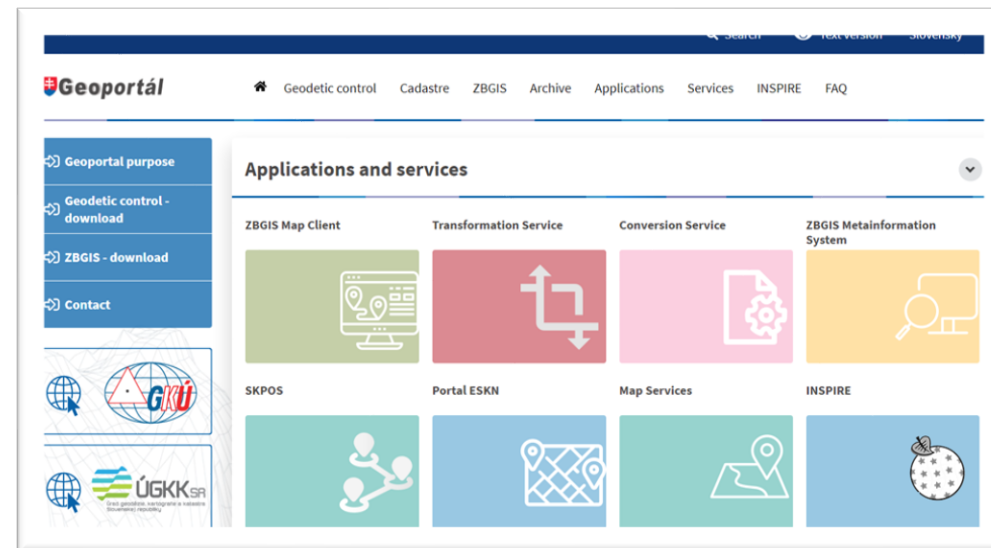


All spatial data is available through electronic services. The data is processed using digital cartography to ensure image clarity and legibility. The **Geoportal** provides access to map services and **freely accessible** web applications:

- **ZBGIS<sup>®</sup>** Map Client
- Transformation service
- Conversion service
- ZBGIS Metainformation system
- Metadata editor
- **SKPOS<sup>®</sup>**
- Portal ESKN (cadastral services)
- Web Map Services →

provided according to the OGC standards:

- WMS
- WFS
- WMTS
- WCS





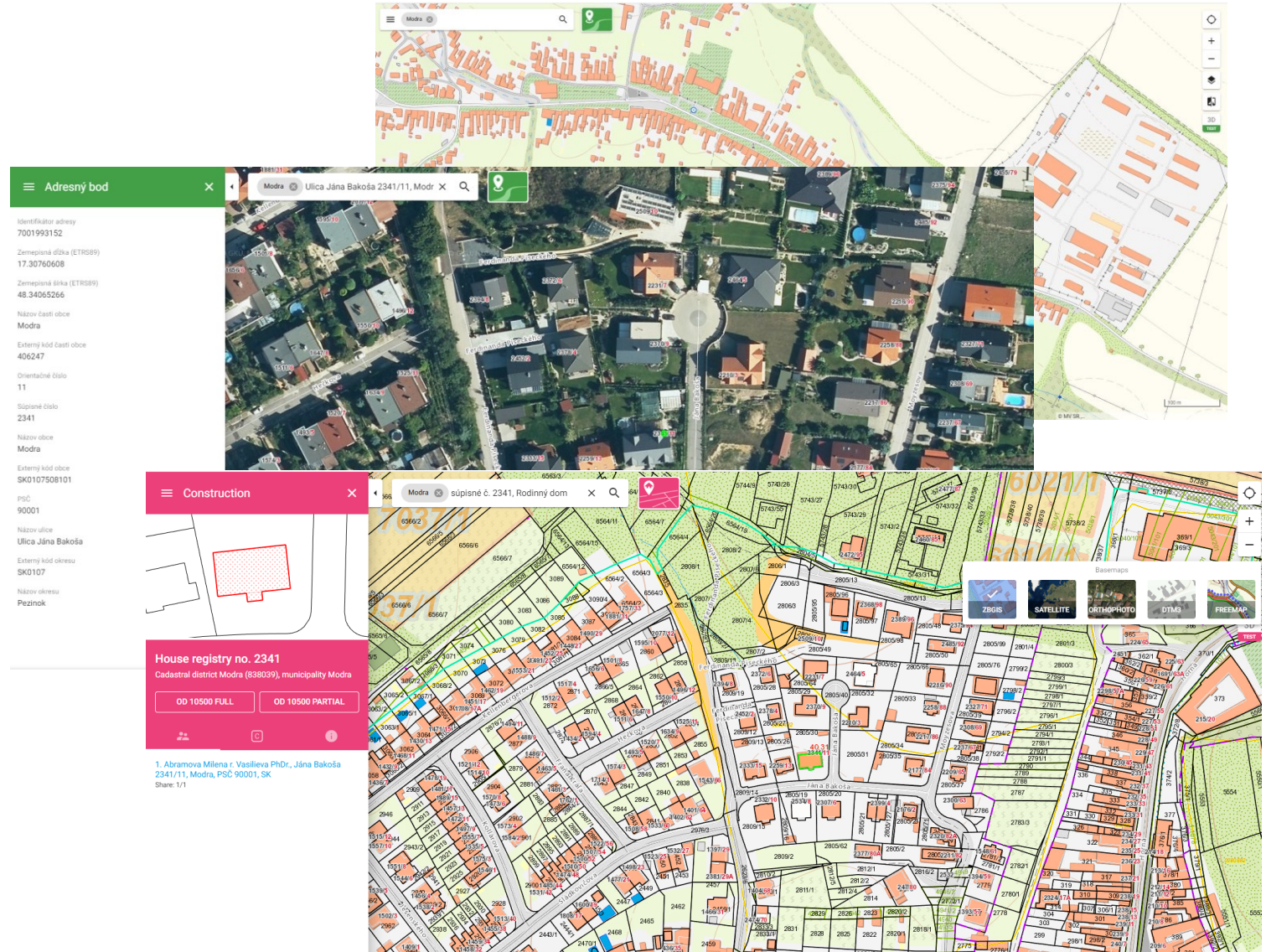
- <https://zbgis.skgeodesy.sk/mkzbgis/sk/>
- Free of charge service

## Layers

- Topographical map
- Cadastre
- Terrain
- Geodetic Controls
- Archive
- Geographical Names

## Basemaps

- Topographical map
- Orthophoto
- Satellite images
- Digital Terrain model DTM3
- Freemap





# ZBGIS® Map client

- Layer Archive
  - older mapping campaigns

## scanned rasters

administrative map of SR

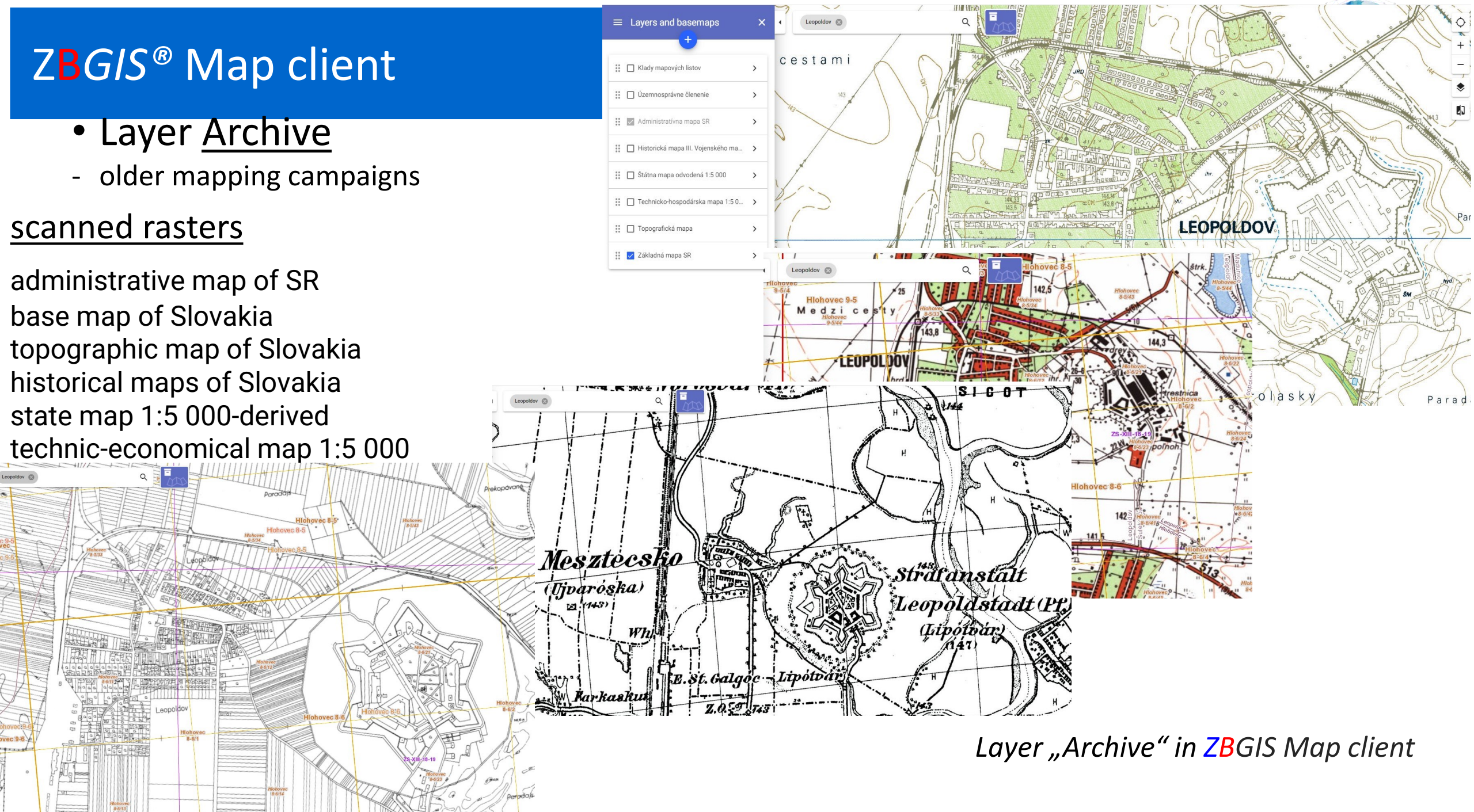
base map of Slovakia

topographic map of Slovakia

historical maps of Slovakia

state map 1:5 000-derived

technic-economical map 1:5 000



Layer „Archive“ in ZBGIS Map client

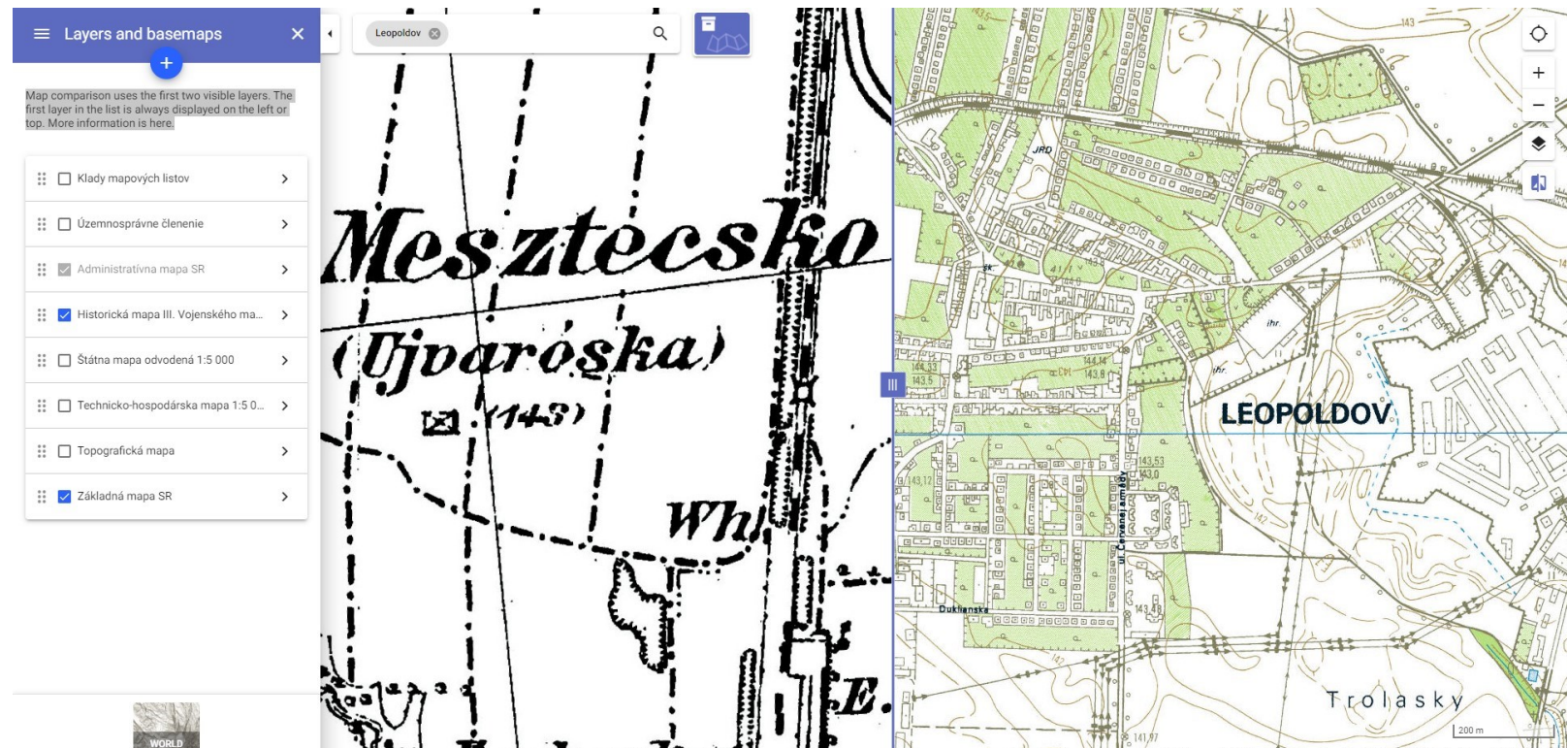




## Feature “The Compare maps”

- compare feature allows you to compare 2 layers within a selected theme
  - Function is available in the themes Base map, Cadastre of Real Estate, Terrain and Archive

Map comparison uses the first two visible layers



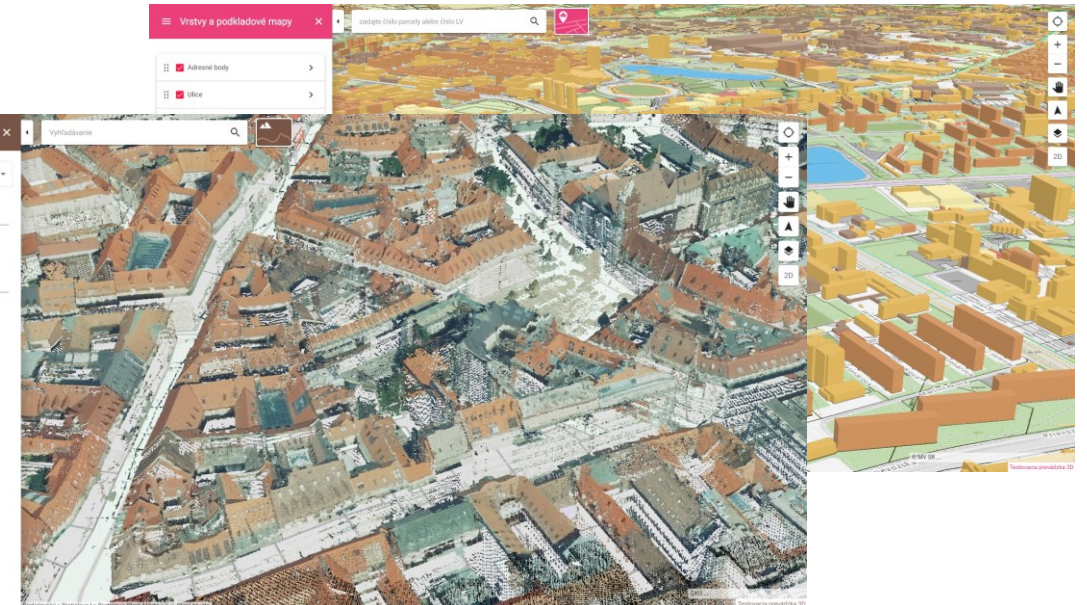


- From 2019 - Application on mobile phones
- Identification of cadastral parcel via GNSS

Parcelné číslo	Výmera v m <sup>2</sup>	Druh pozemku	Spôsob využitia pozemku	Druh chránenej zóny/účasti	Spoločná nehnuteľnosť	Umiestnenie pozemku	Druh právneho vzťahu
654/277	324	Zastavaná plocha a nádvorie	18		1	1	
654/277	310	Záhrada	4		1	1	
654/277	164	Zastavaná plocha a nádvorie	15				

## 3D view

A 3D viewing theme is available under Basic Map, Real Estate Cadastre and Terrain - contains 3D Buildings (object classes ZBGIS) represented in the 3D view and in the layer Terrain also Raster data from Laser scanning (cloud of points)





# Systematic standardization of Geographical Names



Since 1967 - United Nations Group of Experts on Geographical Names (UNGEGN)

## Slovakia



- the establishment of a Name Commission in 1970 – experts - scientists, universities, central administration bodies
- Member of UNGEGN - since 1971 – Czechoslovakia  
- since 1993 - Slovakia
- standardization – according to act on Geodesy and Cartography  
+ Resolutions from UN meetings on standardization of Geonames



- 1995 - The creation of a separate **Database of Geographical names from the Slovak territory** – Completed 2003
- Since 2003 - the database is updated continuously
- **Content**
  - Set of standardized names of all residential and non-residential geographical features within the scope of the Feature Catalogue of the Topographic Database for the Geographic Information System (KTO ZBGIS®)
- Currently contains about **119 000 names**
- The basic source - **The published lists of Standardized Names**
  - from
    - Basic Map of Slovakia - scale 1 : 10 000
    - Basic Map of Slovakia - scale 1 : 50 000
    - Water Management Map of Slovakia - scale 1 : 50 000
  - + additional information: object name, standardization data, variant names, coordinates, previous standardized name, in the case of hydronyms (belonging to a river basin), in the case of the peaks (the altitude)





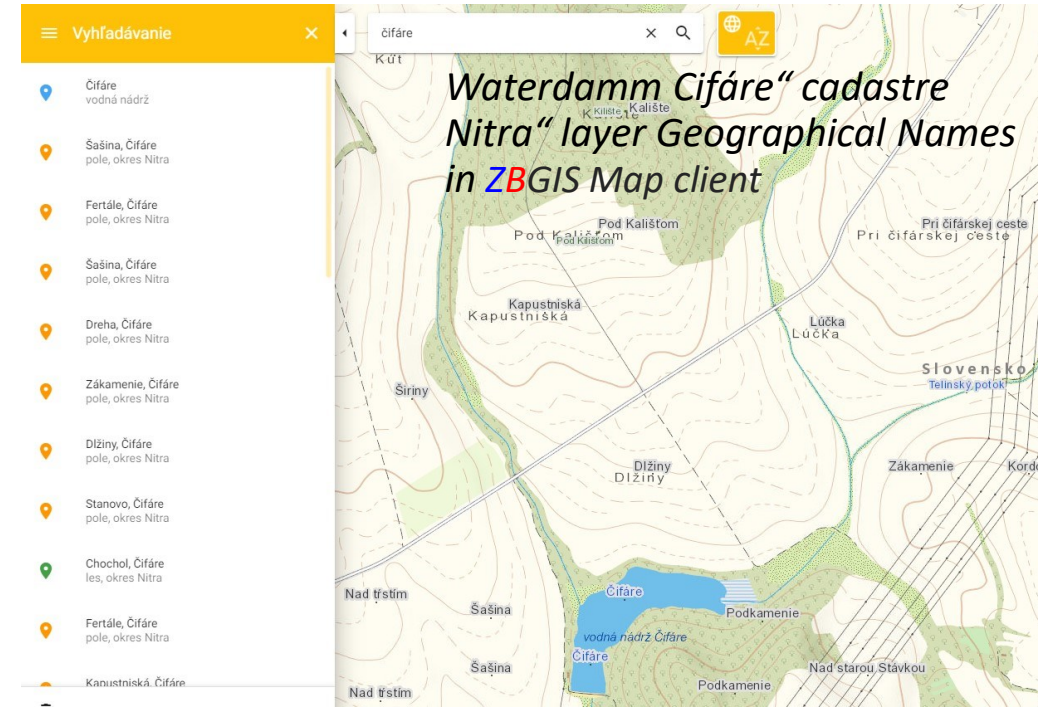
- In 2004 the database of geographical names became part of ZBGIS® in order to gradually link the database with the geometry of topographic features
- A revision of the names and their attributes was carried out in 2012 in order to become an integral part of the ZBGIS
- The structure of the database has been modified according to the requirements of the EuroGeoNames project and also according to the INSPIRE specifications
- Provision of data - **free of charge**
- The database of geographical names from the Slovak territory download in formats:  
**Esri SHP, Esri MDB, Esri GDB and CSV**
- Access - The data is accessible through **WMS and WFS mapping services**

# Geonames – situation in 2015



## Geonames in ZBGIS®

- Database of geographical names is created from maps in scales 1:10 000, 1:50 000 and Small scales maps
- Database does **not contain** geographical names from Large scale maps
- Large scale maps - **Cadastral maps, Forest maps** – have their own Database of names



**!!! Issue** - the same objects have the different names and localization in different sources

**Solution** - unify, edit, and standardize a single name for each object

**How?** - Extending ZBGIS® content with names from Cadastral maps and Forest maps



**Project of densifying the content of the database of standardized geographical names by names from cadastral maps and forestry maps**



## The Result

- **Better search for objects** through any variant form of the name (historical names, dialect forms, grammatically incorrect forms of the name, typos)
- Scientific purposes, various areas of communication, preservation of cultural heritage



*Layer Geographical Names in ZBGIS Map client*



# Project – 3 steps



## Procedure of expanding the database

GCCA - unifies databases - most of the work - the secretariat of the Name Commission  
+ involved - Cadastral Offices  
- Municipalities - in case of discrepancies they deal with better knowledge of the terrain

### 1st Step

Comparison of names from cadastral maps / forest maps with the database of geographical names and determination of further manipulation with them

### 2nd Step

Assessment / verification of disputed names in the municipality and Cadastral Office

### 3rd Step

Meeting of the Name Commissions with the Cadastral office

Every name – Approved by the Ministry of Culture of the Slovak republic

GCCA - a decision of standardization of the name, Graphic placement

A new layer is provided to the Cadastral Office and National Forestry Centre



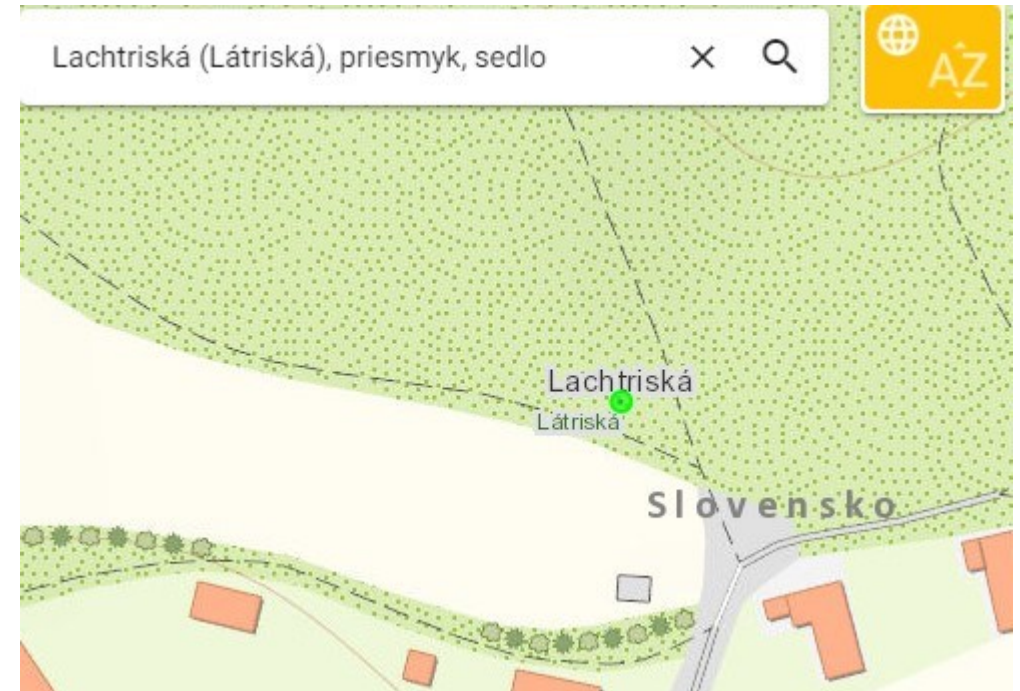
## Pilot district

Banská Štiavnica (1 district) – **2453 names**

(1482 in cadastral maps + 971 in forest maps)

## Plan

Whole territory of Slovakia is about 10 years at the current state - 3 administrative staff from GCCA



Number of districts - 79

Number of all names for verification - 276 575

Number of cadastral districts - 3 559

The average number of names **per 1 district - 3842**



## 18% districts of Slovakia - completed

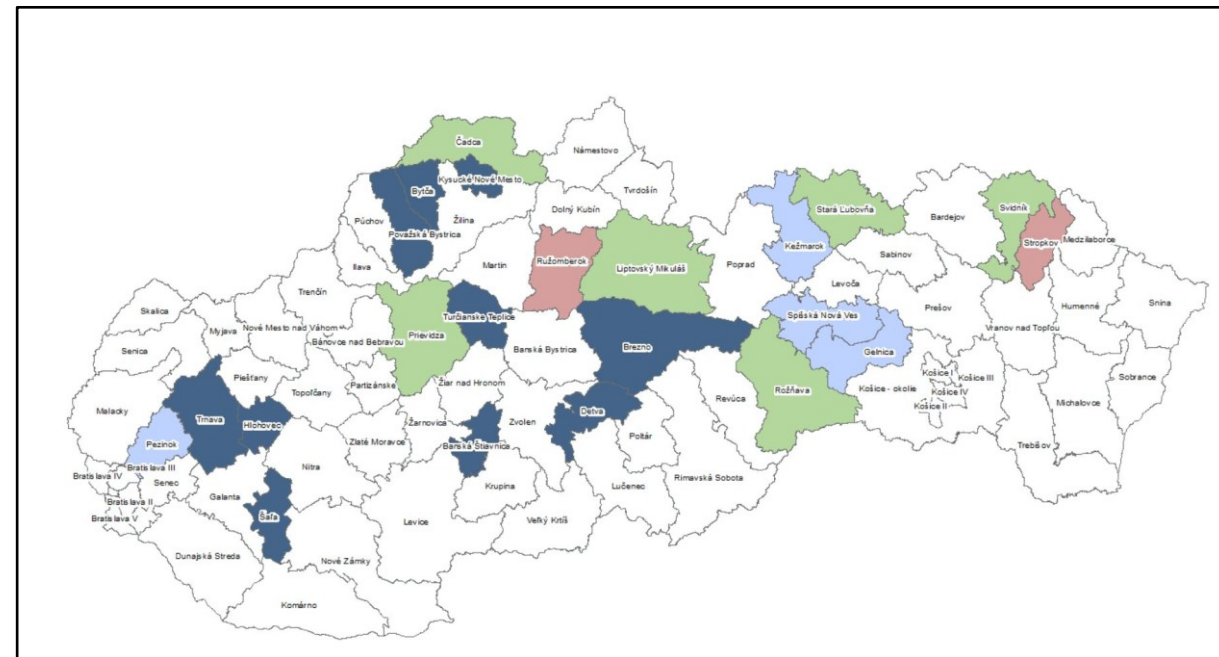
Banská Štiavnica, Šaľa, Hlohovec, Kysucké Nové Mesto, Turčianske Teplice, Považská Bystrica, Bytča, Brezno, Detva, Trnava, Kežmarok, Gelnica, Spišská Nová Ves

## 13% districts of Slovakia - semicompleted

Čadca, Liptovský Mikuláš, Pezinok, Prievidza, Rožňava, Ružomberok, Stará Ľubovňa, Stropkov, Svidník

## Completed districts + Semicompleted districts: 31%

- In the completed districts - the names of watercourses are being verified



# What is new in GCCA



## New amendment of the Act on Real Estate Cadastre

- proposal is now in interdepartmental approval with other Ministries and State bodies

## Inscription of Castle ruins that are being restored

- will be allowed to register in cadastre

## Higher fees for cadastral proceeding and services

- Ownership document 8€ - **11€**
- Administrative verification of survey sketch (4copies) – 27€ - **38€**
- Cadastral procedure 66€ (electronical 33€) - **92€** (electronical **46€**)
- Inscription of public deeds, inheritance and court decisions within 60days - free of charge – faster procedure (20days) - paid service - **200€**
- Inspection of data corectness - free of charge – **50€**

Castle ruin „Pustý hrad“, cadastre Zvolen



## Faster procedures - Inscription of public deeds, inheritance and court decisions

- (today - paper 60 days/electronical 30days)
- 20days for 200€
  - 5 days – deletion of loans from ownership document (free of charge)



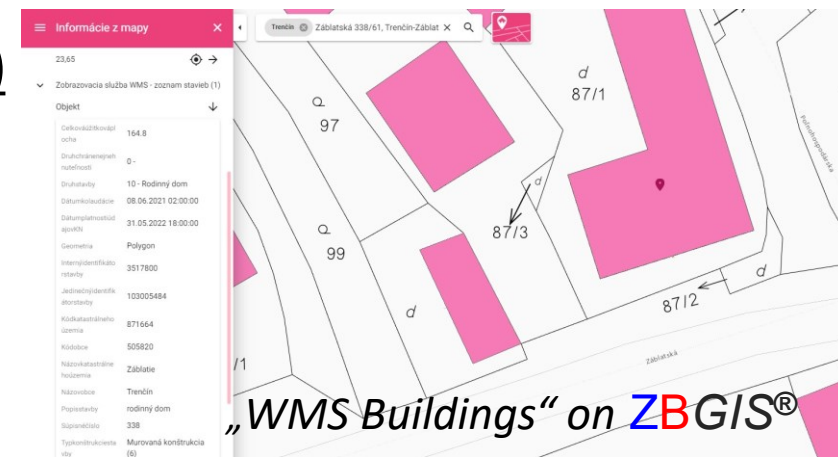


# What is new in GCCA



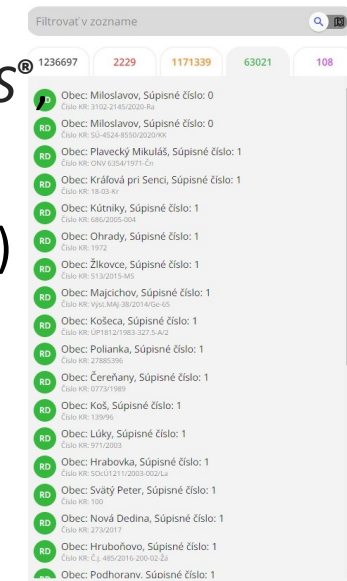
## New web application - Information System on Buildings (IS Buildings)

- in operation from 2019
- Information on buildings with administrative approval from 2014 (data on buildings: approval number for building, date of approval, number of floors, number of rooms, total usable area, type of construction)
- 63 000 buildings, 2962 users
- Integrated with Cadastral maps and Cadastral Data, ZBGIS® Orthophoto, Address points, Satellite images
- Users – All construction offices in Slovakia (municipalities)
- Data consumers - Ministry of Finance, Statistical Office (IS Buildings + Cadastral data + Prices)



„WMS Buildings“ on ZBGIS®

- WMS Buildings on Map client ZBGIS®



„IS Buildings for Construction offices in municipalities“



# Any questions?



## Thank you for your attention

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[dusan.hanus@skgeodesy.sk](mailto:dusan.hanus@skgeodesy.sk)