

Panel II
***Natural and Cultural Heritage and Traditions
as an Opportunity for All***

Prof. RNDr. László Miklós, DrSc., RNDr. Anna Špinerová, PhD.

***The UNESCO-Chair for sustainable
development and Ecological
Awareness***

***Faculty of Ecology and
Environmental Sciences***

Technical University in Zvolen

How to utilize the traditions:

**The integrated management of the
landscape:**

a command of the present days

What (is possible) to integrate ?



? natural bodies – not possible

? land use **form** – not possible – all the forests, fields, built objects, need their territory

? land use **mode** - limited

? **management** - limited – different sectors, owners, users

but needed

Prerequisites for tourism development

Theory:

A. Localising criteria – the material components

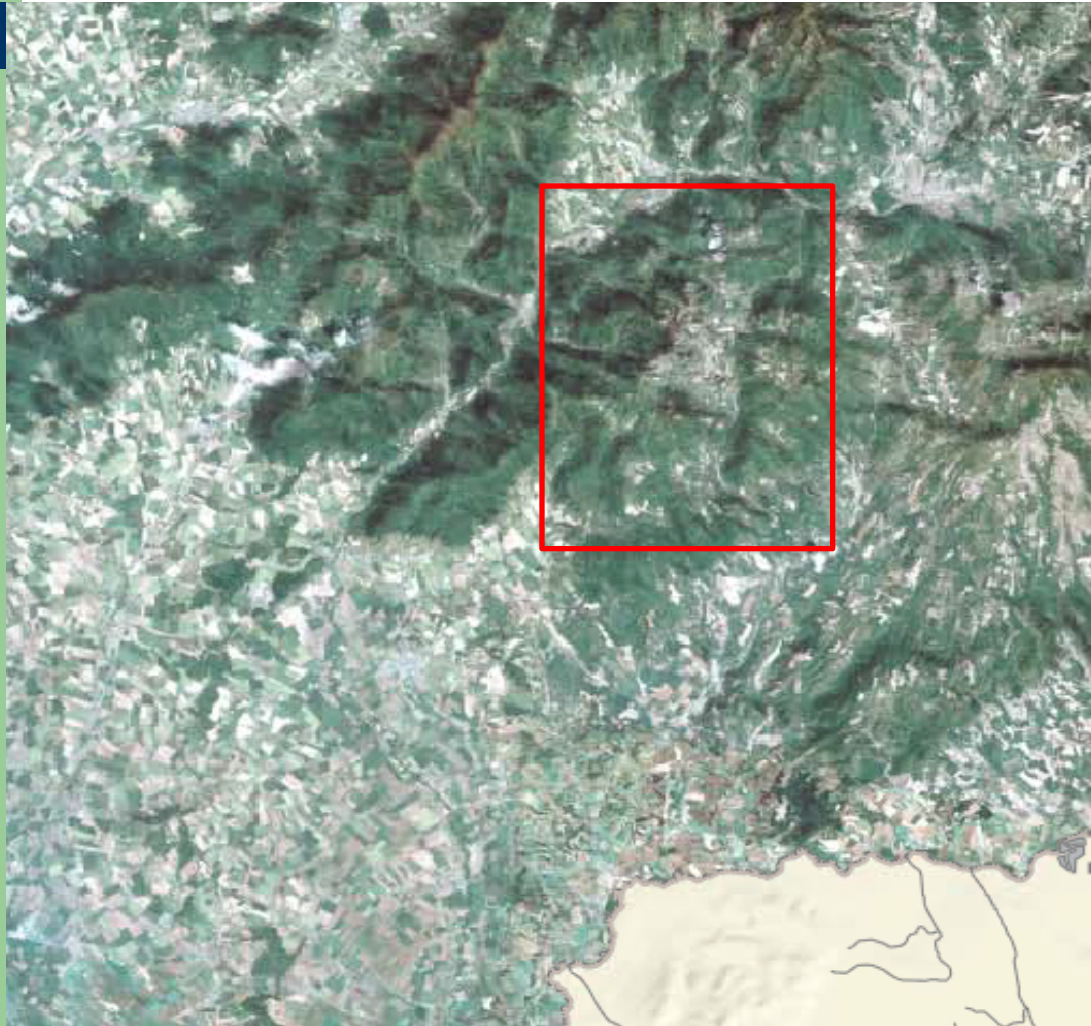
B. Selective criteria – traditions, culture (people)

C. Realising criteria – services, infrastructure

➤ **integration and harmonisation** needed

- MIAZDRA, J. A KOL., 1972: Model funkčného a priestorového usporiadania stredísk zotavenia. Metóda valorizácie rekreačných priestorov. Výskumná správa CUA, Bratislava
- MARIOT, P., 1983: Geografia cestovného ruchu. Veda, Bratislava, 248 s.
- PREOBRAZHENSKIJ, V.S., Yu.A. VEDENIN, N.M. STUPINA (1984): Development of Recreational Geography in the USSR. — In: GeoJournal 9, S. 77-82.

As for example



UNESCO
World Heritage
Banská
Štiavnica and
the
surrounding
technical
monuments

A. Localising criteria:

Built monuments and Nature

- Abundancy

but

- ❖ maintenance of the built monuments needed
- ❖ maintenance of the natural surroundings needed
 - **Ecosystem services and their maintenance – new approach**

The material heritage

- Historical buildings
- Mines
- The water system
- **Natural surroundings: extreme natural/antropic diversity of ecosystems**



Unique: the water system „water for water” management

- ❑ One of most famous heritage of mining in Banská Štiavnica is its system for draining the mine draining system
- ❑ System of
 - tajchs (more than 60)
 - collecting and draining canals (72+57 km)
 - mutual connections (tunels)
 - galleries
 - pumps and other devices.

Water reservoirs – the „tajchs”

- Water collecting system in the hilly environment
- Built from the 16th to the 19th century
- The total volume of more than 60 tajchs around about 7 million m³,
- 40 reservoirs served for the needs of mining operation,
- the rest to drive other than mining devices, to supply drinking water and for fishing.
- the collecting canals were 72 km
- the race canals 57 km.
- use the total hydroenergetic potential of the watershed of two rivers, the Hron and Ipel’.

Teichs



The most ...

- Until the mid-19th century:

three highest dams in Europe

built for the mining industry had been tajchy in Slovakia:

- Rozgrund (30.2 m),
 - Počúvadlo (29.6 m),
 - Veľká Richňava (23.4 m).
- 7 out of 13 European mining water reservoirs with the biggest volume of water were tajchs.

Most courageous earthy dam in the world: Rozgrund

- designed by S. Mikovíni in 1741
- dam slope on the outer side a technical rarity:
most daring construction in the world
until the middle of the 19th century
- the earthy dam is 139 m long, 23,2 m high, 7,6 m wide
- capacity is 960 thousand m³ of water
- depth of 22.3 m
- 704 m above sea-level.

The deepest and biggest capacity: Rozgrund



Most known and largest: Počúvadlo



The oldest:

Veľká Vodárenská: built before 1510



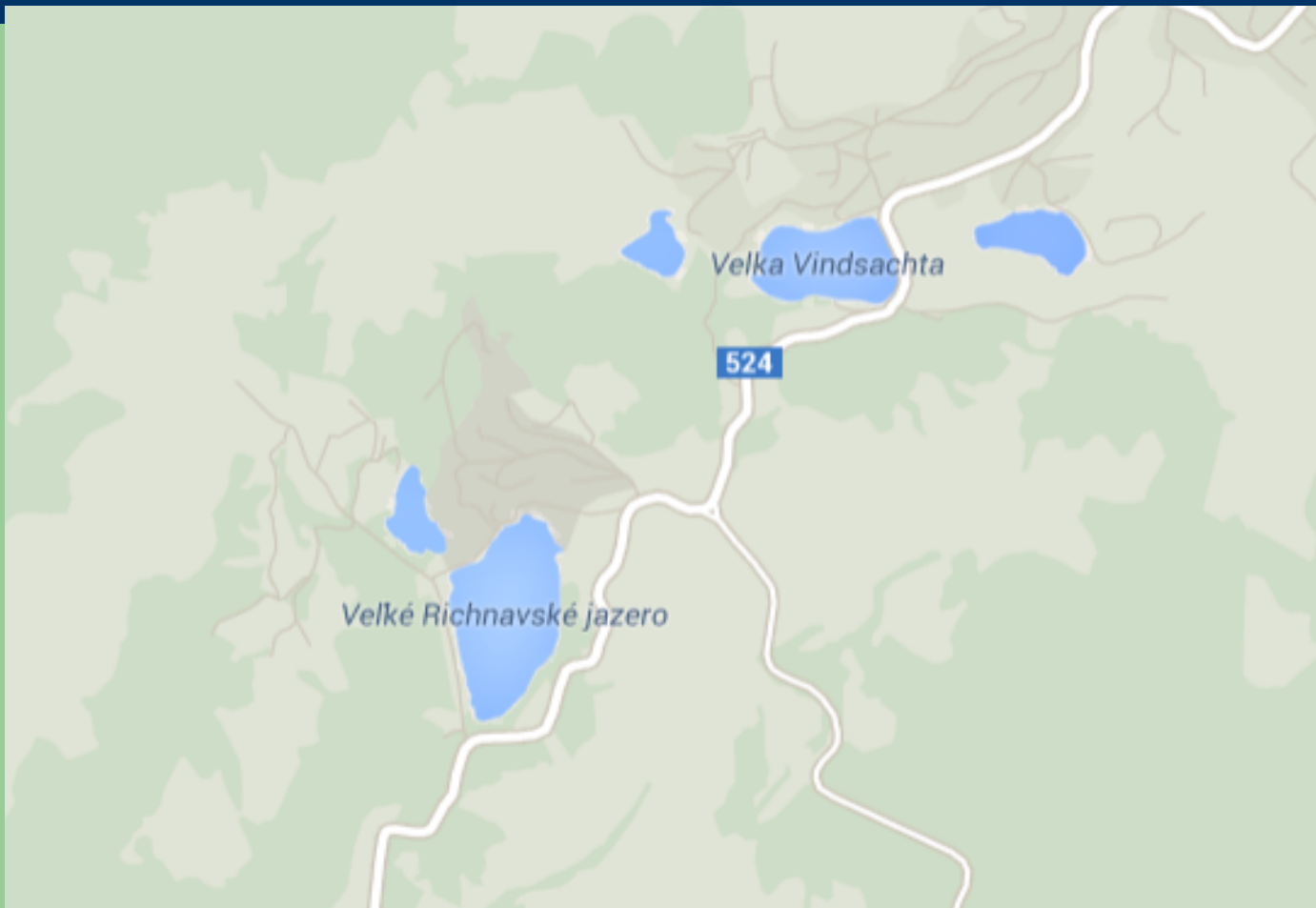
**Highest:
Ottergrund: 801.2 m a.s.l.**



Rarity: lake on the **watershed divide**
Hron/Ipeľ',
Červená studňa (1759), 787 m asl



**Most interesting: the joint – by tunnel - system
across the watershed divide:
Rychnava - Vindšachta**



Joint system accross the hills: Rychnava - Vindšachta



Bakomi – Vindšachta - Evička



The tajchs today

- became an **integral part of their natural environment**
- several of the dams have been recently reconstructed
- other, usually smaller, hidden in the forests of the Štiavnica Mountains, „died“.
- some of the reservoirs are heavily frequented by tourists.

B. Selective criteria: Tradition's heritage

Focus on the whole UNESCO Agenda !

- Culture
- Science
- Education

Selective criteria in Bnaská Štiavnica: O.K., but ...

Needed

- better promotion
- all-year-around actions

❖ Possibilities:

- **Educational activities** – permanent institutions
- **Science** – permanent institutions

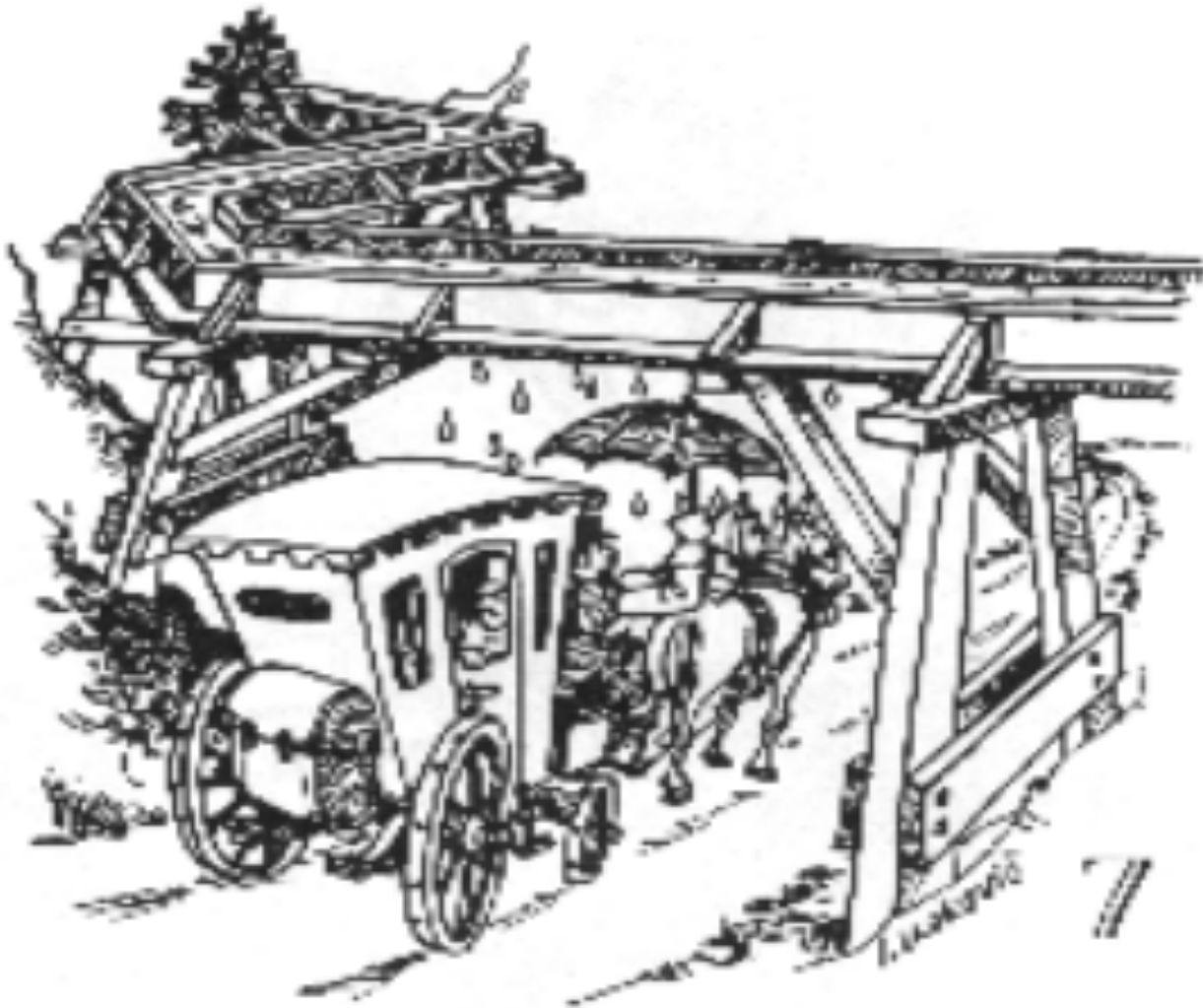
1. Cultural heritage

Miners traditions

- Miner choir: songs
- Banskoštiavnicko-hodrušský banícky spolok
 - Šachtág
 - Náckov pochod - vtipy



6th miracle The water on the bridge the carriage under bridge





7th miracle The water flows uphill



Channels



2. Education heritage Academists traditions

- Salamander procession
 - Academicians for Štiavnica
 - Followers of the Mining Academy
- ❖ **Today????**
- High schools only
 - University teaching???
 - UNESCO-Chair
 - Academy of Arts
 - Plenair for Architects

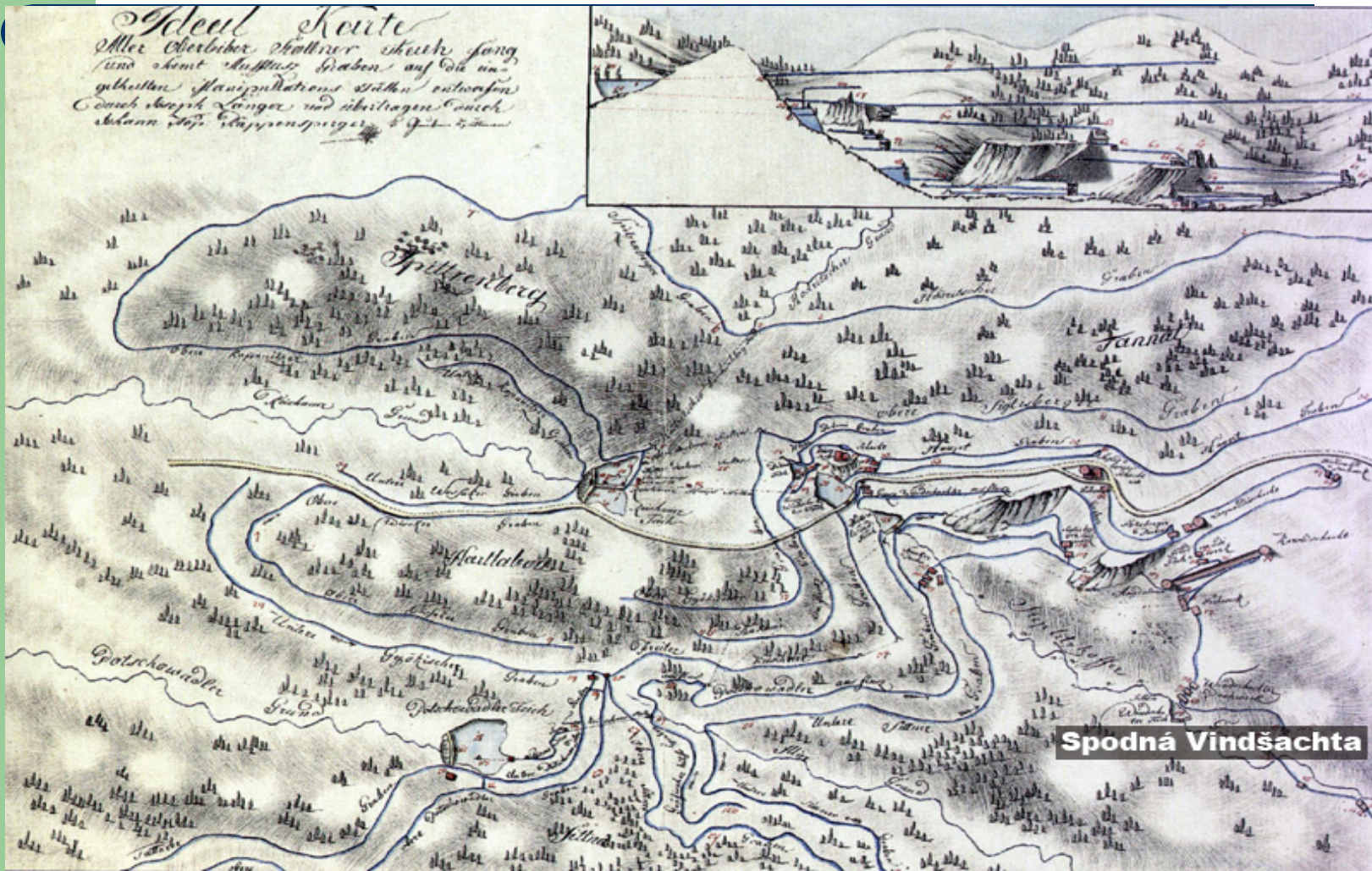


3. Scientific heritage

Research tradition

- **Scientific personalities and findings**
 - Jacquin, Doppler, Hell, Mikovíny, Kneppo
- **The engineering**
- **Cartography and technical drawing**

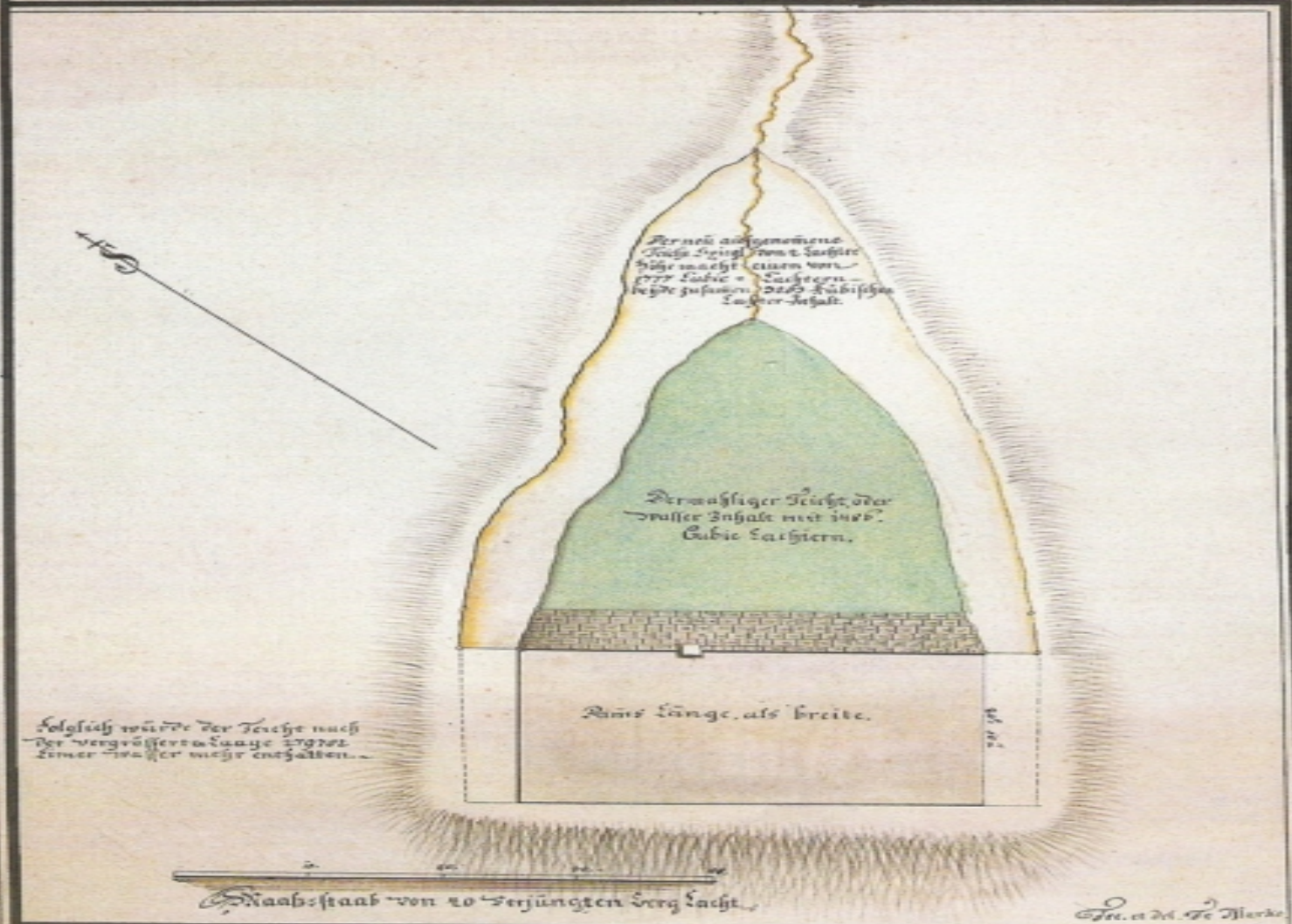
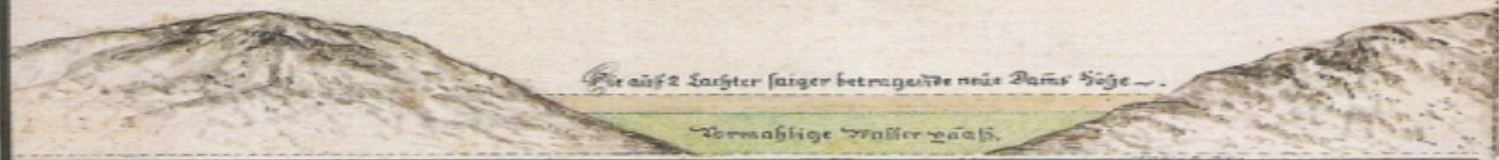
Top engineering performance in 16th-18th century



Grüner Riß von dem Brennerstollner Teiche

Der auf 2 Lasten Saiger betragende neue Saiger Höhe

Vermaßliche Waßer Maß



Der neu aufgenommene Saiger steigt von 2 Lasten Höhe macht einen von 1777 Cubic Saigern bestehende Saiger Inhalt.

Dermaßlicher Teiche oder Waßer Inhalt mit 1777 Cubic Saigern.

Raum Länge, als Breite.

Solglich würde der Teiche nach der vergrößerten Länge 1777 Saiger Waßer mehr enthalten.

Maßstab von 10 Verjüngten Berg Saicht

Dr. et M. de Merke



Ansicht des Saiger Höhe



Channels



Science today ???

- **Slovak Academy of Sciences**
 - **till 1992 ???**
- **(State???) Mining Archive**
- **Museums**

- **(Probably) new projects**

Ecosystem services – new approach

Classification according to CICES (EEA)

1. Provisioning services (Zásobovacie služby),
 2. Regulating and maintenance services (Regulačné a udržiavacie služby)
 3. **Cultural services (Kultúrne služby)**
- +
4. Supporting services (Podporné ekosystémové služby)

Kultúrne služby (Cultural services)

Nehmotné úžitky cez estetické zážitky, rekreáciu, poznávanie a duchovné obohacovanie.

1. Kultúrna **diverzita** krajiny;
2. **Znalostné systémy**, vyvinuté rôznymi kultúrami na základe vplyvu rôznych ekosystémov;
3. **Duchovné** a náboženské hodnoty
4. **Výchovné a vzdelávacie hodnoty** (ekosystémy, ich zložky a prvky ako základňa na formálne i neformálne vzdelávanie a osvetu);
5. **Estetické** hodnoty (vnímanie krásy ekosystémov, ich zložiek a prvkov);

Project VEGA No. 1/0096/16

*Ecosystem services
of the landscape ecological complexes
in the area of the
UNESCO World Cultural and Natural Heritage
site
Banská Štiavnica and surrounding technical
monuments.*

C. Realisation criteria: Infrastructure, services

Problems!

- Purchasing capacity - how to keep all-year-around
 - only 18.000 permanent inhabitants in the whole district,
- geographic isolation
- Accomodation, restaurants, services

What could help?

Improve the selective and realising conditions !!!

- ❖ Possible integrating activities
- **Educational activities** – permanent institutions
- **Science** – permanent institutions

Helps to increase the:

- number of (specific) inhabitants - purchasing capacity -
services – maintainance of the buildings – number of
visitors ...

It is certainly not all what remained as
problem

All those problems are solvable ! Depend on people.
There is still a lot of work for all of us!!!

Thank you for your attention!

*Príspevok vznikol ako výstup vedeckého projektu VEGA č. 1/0096/16
„Ekosystémové služby krajinnno-ekologických komplexov na území
Svetového kultúrneho a prírodného dedičstva UNESCO Banská Štiavnica
a okolité technické pamiatky“.*