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EXTRACTIVE MINING RELATED HAZARDS AND RISKS IN ROMANIA

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Structure:

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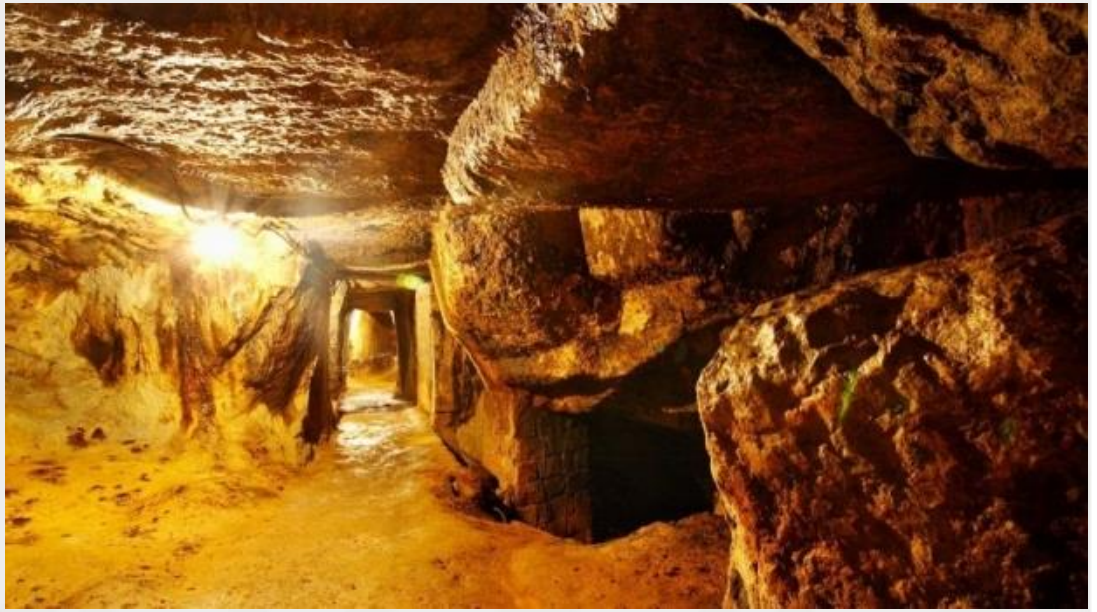
History of mining

- The Carpathian Mountains are rich in mineral resources of gold, silver, copper and complex ores.
- The exploitation of the metals has started from ancient times.
- The volume of the processed ores increased, reaching their highest quantities in the middle of the 20th Century.



History of mining

- After the socialism the restructuring of mining industry began, bringing major economic, social and environmental changes.

- These changes had a significant impact on local communities, causing their decline from the economic point of view.


AURUL TMF
Zakopane
Drohobych
Бережани
Letychiv
Vinnytsi
Poprad
Spišská
Nová Ves
Rožnava
Rimavská
Sobota
Miskolc
Eger
Karcag
Szentes
Szeged
Кикинда
Kikinda
Timișoara
Făget
Deva
Sebeș
Cugir
România
Гнівань
Hnivan'
Подільський
Soroca
Florești
Bălți
Mold
Ungheni
Lăpușna
Vaslui
Huși
Bârlad
Cahul
Focșani

TMFs in Romania

- **Danube TMF Project:** Safety of the Tailings Management Facilities in the Danube River Basin – founded by the German Federal Agency for Environment.

- **Totally 152 TMFs in Romania**
- 88 are located in the Carpathians
- 8 are active
- 80 are closed or rehabilitated

Tailings Hazard Index and Tailings Risk Index

- **THI:**

$$THI = THI_{Cap} + THI_{Tox} + THI_{Man} + THI_{Nat} + THI_{Dam}$$

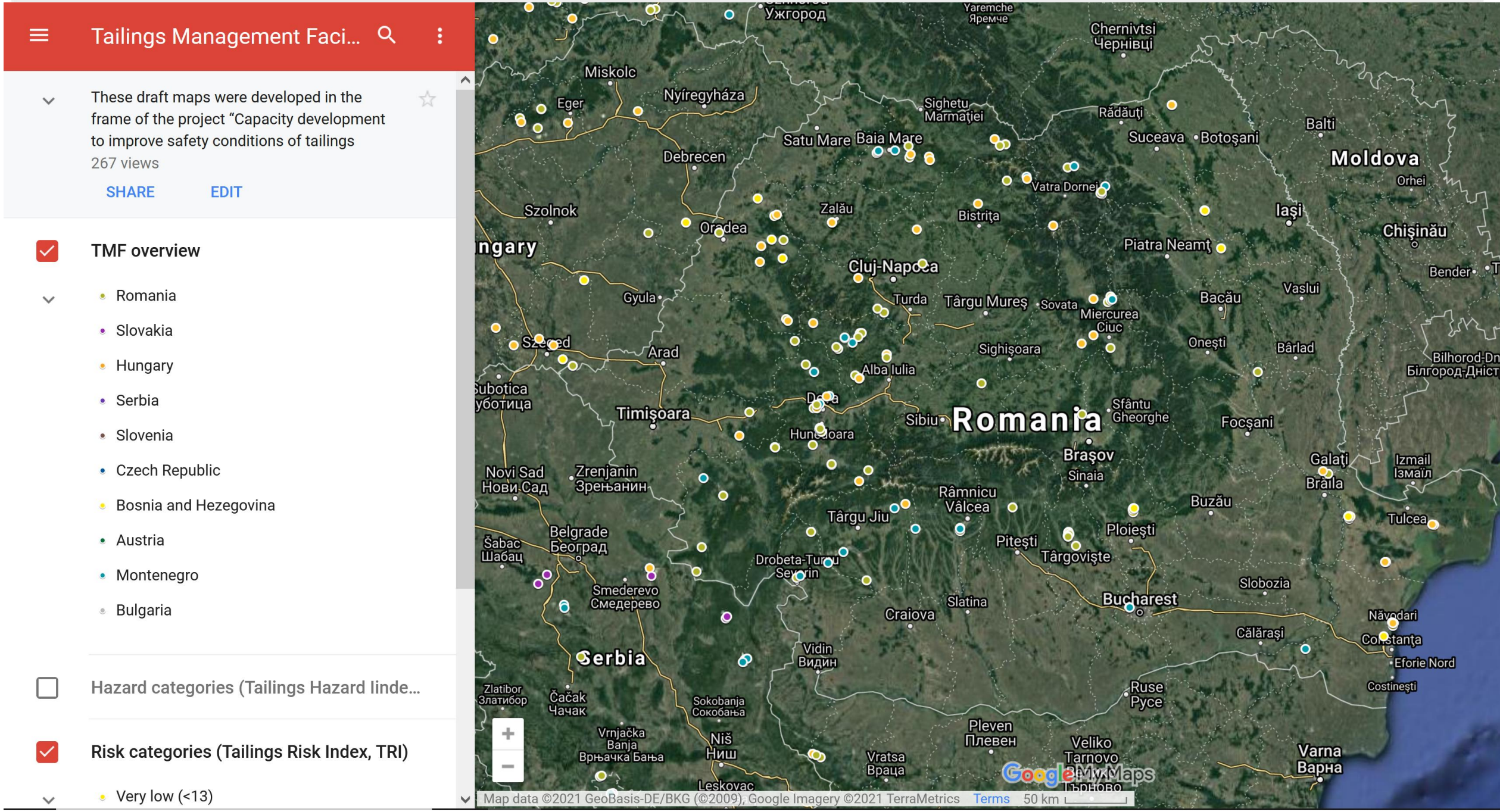
- $THI_{Cap} = Log_{10}[V_t]$ - hazard index for the volume of stored tailings - V_t (m^3);
- THI_{Tox} – toxicity index based on the Water Hazard Class of tailings materials;
- THI_{Man} - management conditions index;
- THI_{Nat} - natural hazards index, floods and seismic events;
- THI_{Dam} - dam condition index, based on Factor of Safety

Tailings Hazard Index and Tailings Risk Index

- **TRI:**

$$TRI = THI + TEI$$

- where TEI represents the Tailings Exposure Index
- based on the downstream population (10 km distance)
- the proximity of surface waters: rivers (flow rate) or lakes (surface)


Tailings Management Faci...
These draft maps were developed in the frame of the project “Capacity development to improve safety conditions of tailings
267 views
SHARE
EDIT
TMF overview
Romania
Slovakia
Hungary
Serbia
Slovenia
Czech Republic
Bosnia and Hezegovina
Austria
Montenegro
Bulgaria
Hazard categories (Tailings Hazard Inde...
Risk categories (Tailings Risk Index, TRI)
Very low (<13)
Romania
Moldova
Serbia
Ужгород
Yaremche
Яремче
Chernivtsi
Чернівці
Miskolc
Eger
Nyíregyháza
Sighetu Marmaţiei
Rădăuţi
Balti
Satu Mare
Baia Mare
Suceava
Botoşani
Debrecen
Vatra Dornei
Orhei
Szolnok
Zalău
Bistriţa
Iaşi
Oradea
Chişinău
Piatra Neamţ
Cluj-Napoca
Bender
Gyula
Turda
Târgu Mureş
Sovata
Miercurea Ciuc
Bacău
Vaslui
Arad
Sighişoara
Oneşti
Bârlad
Alba Iulia
Timişoara
Sibiu
Sfântu Gheorghe
Focşani
Braşov
Sinaia
Galaţi
Brăila
Izmail
Ізмаїл
Novi Sad
Нови Сад
Zrenjanin
Зрењанин
Râmnicu Vâlcea
Buzău
Târgu Jiu
Tulcea
Belgrade
Београд
Šabac
Шабац
Piteşti
Ploieşti
Târgovişte
Drobeta-Turnu Severin
Smederevo
Смедерево
Slobozia
Bucharest
Slatina
Craiova
Năvodari
Călăraşi
Constanţa
Eforie Nord
Vidin
Видин
Costineşti
Zlatibor
Златибор
Čačak
Чачак
Sokobanja
Сокобања
Ruse
Pyce
Pleven
Плевен
Vrnjačka Banja
Врњачка Бања
Niš
Ниш
Veliko Tarnovo
Vratsa
Враца
Varna
Варна
Leskovac
Google My Maps
Map data ©2021 GeoBasis-DE/BKG (©2009), Google Imagery ©2021 TerraMetrics
Terms
50 km

Conclusions

- Most of the TMFs in Romania are not closed properly or ecologized, still polluting the environment.
- In many cases the Technical Project of closure and the real situation do not fit.
- Serious investments needed for the closure of the remaining TMFs. Founding?

Conclusions

- The THI, TRI and TMF checklist methods developed within the DANUBE TMF project is a first opportunity for EU Countries to work with a unitary approach which can help to prevent future TMF disasters.

- The implication of national level authorities is very important for the implementation of theses method.

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