

# Mine waste management legislation. Gold mining areas in Romania

R.Maftei<sup>1</sup>, C.Filipciuc<sup>1</sup> E.Tudor<sup>1</sup>,

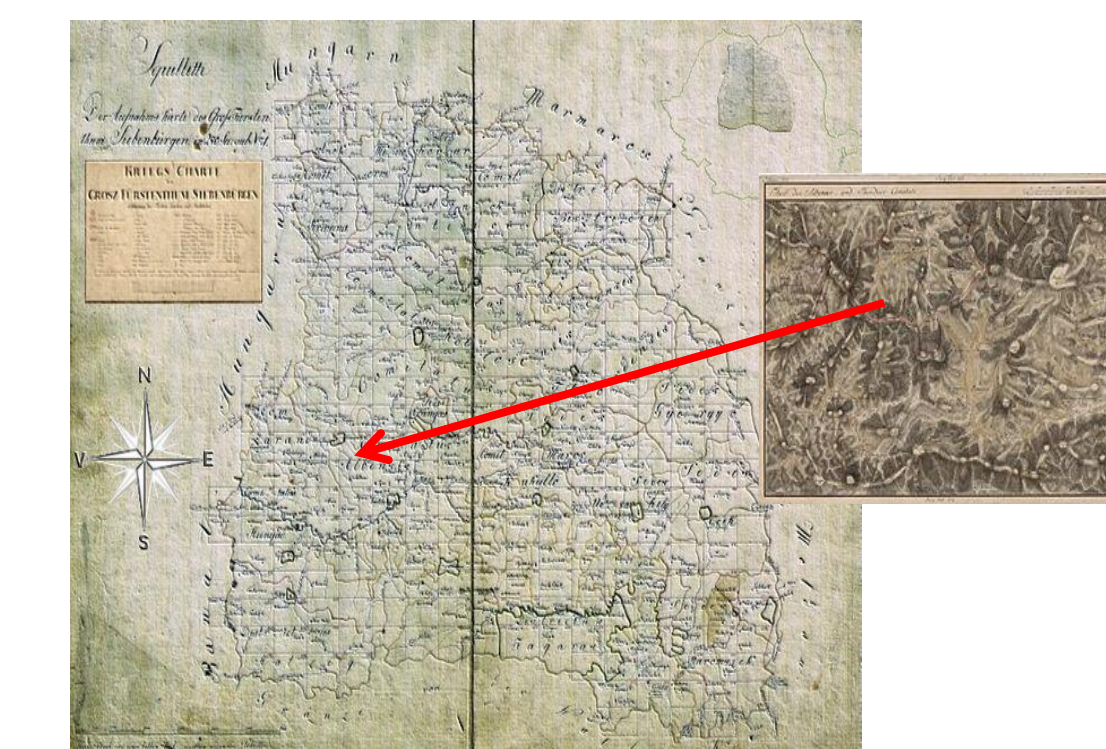
(1)Geological Institute of Romania, Bucharest, Romania



History search and processing of gold in the Carpatho-Danubian-Pontic area is very old.



Rosia Montana is a common of 16 villages; one of them is also called Rosia Montana, a traditional mining Community, located in the Apuseni Mountains in the North-Western Romania. Beneath part of the village area lays one of the largest gold and silver deposits in Europe. In the Rosia Montana area mining begun ever since the height of the Roman Empire. While the modern approach to mining demands careful remediation of environmental impacts, historically disused mines in this region have been abandoned, leaving widespread environmental damage.



Bucium and Rosia Montana areas

Map of the Grand Duchy of Transylvania

## Waste management framework



## Romanian Regulations

Based on the Governmental Emergency Ordinance (GEO) regarding the Law of Environmental Protection no. 195/2005, abrogating former Law no. 137/1995, waste management is to be performed in a manner that is protective to the human health and the environment and in compliance with the provisions of current relevant legislation. The major planning documents in this field are the National Strategy for Waste Management and the National Plan for Waste Management, both approved by the Governmental Decision no. 1450/2004.



## Case study- Rosia Montana project

“Two types of waste will be generated by the mining activities: waste resulting from gold and silver extraction – called mining waste, and non-mining waste.

Most of the waste generated by the Roşia Montană Project is mining waste – waste rock and process tailings. Waste rock is the rock extracted from the pit, which does not contain gold and silver which could be processed cost-effectively.

Waste rock will be stored at the beginning of the project in two stockpiles, i.e. Cetate stockpile (west of the Cetate pit) and Carnic stockpile (south-east of the Carnic pit).

The open pit mining operations have been designed in such a way that the surface occupied by these stockpiles is minimised, thus mitigating their environmental impact. Thus, as soon as the resources from a pit have been exhausted (once the gold and silver have been extracted), the waste rock will be backfilled in that pit, in order to fill up the mining holes. Thus, the Jig pit will be fully backfilled, whereas the Carnic and Orlea pits will be partially backfilled with the waste rock from the operating pits.

Process tailings are the finely ground material resulting from gold and silver extraction from the ore, in the processing plant

Before leaving the processing plant, the tailings go through a detoxification installation, which reduces the cyanide concentration to 3 mg/l, and are then be stored in a tailings management facility in Corna Valley.

The Romanian and EU legislation provides for a maximum cyanide concentration in the tailings management facilities of 10 mg/l.” (<http://en.rmgc.ro/rosia-montana-project/environment/waste.html>)

European Waste Catalog (Commission Decision 2001/118/EC) has been updated and published in the form of GO 856/2002 *Waste management inventory and approved wastes list, including dangerous wastes.*

Based on the Commission decision 2009/339/EC concerning the waste management facilities - classification criteria – Romanian Government issued GO 2042/2010 which states the procedures for approving the plan of waste management in extractive industries and its applications norms.

Law No. 22/2001 follows the regulations from the Espoo Convention on assessing the impact of mining on the environment sector in a cross-border context.

## References

<http://en.rmgc.ro/rosia-montana-project/environment/waste.html>

Waste plan RMGC

This work was supported by a grant of the Romanian National Authority for Scientific Research, CCCDI – UEFISCDI, project number 3004/2014