

# FORECAST RESOURCES OF ZEOLITHIC TUFFS OF SERBIA

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**ABSTRACT:** Our zeolite tuff deposits (Zlatokop, Igroš, Jablanica 1, Beočin, Toponica and Slanci), which were the subject of detailed research, spatially and genetically are connected to volcanic volcanoclastic rocks of marine environment of Senonian and Neogene age, as well as lake sediments of Neogene age. Zeolitic tuff deposits were formed as a product of devitrification of volcanic glass. More will be said here about the prognostic resources of our zeolite tuffs, both in relation to the registered phenomena so far, and to possible areas in terms of finding new quantities of this economically very interesting mineral raw material.

**Key words:** zeolitic tuff, clinoptilolite-heulandite group, Serbia deposit

## INTRODUCTION

During the geological development of the earth's crust, favorable geological conditions for the creation of higher concentrations of zeolite minerals and the formation of zeolite mineral deposits have been renewed several times. In Serbia, this occurred during the Upper Cretaceous, Paleogene and Neogene, and are related to the effusive activities of Dacite, Dacito-andesitic and andesitic magmas. The most economically significant deposits of zeolite tuffs in our country were created during the Neogene by intensive Young Alpine tectonic-magmatic multiphase activity. Potentially the most promising are: the Vranje, Toplica, Kruševac, Krivorec, Sokobanj, Bogovina, West Moravian and Ibar basins, the eastern part of the Great Moravian trench as well as the Fruška Gora area.

**MINERAGENETIC SKETCH OF SERBIA:** The following regional geotectonic units face each other on the territory of today's Serbia: the Dinarides, the Carpatho-Balkanids and the Serbian-Macedonian mass, and the Pannonian and Dacian basins are also present. In addition to the mentioned geotectonic units, geological processes that took place during the Cenozoic era - in the zone of neo-Alpine (Cenozoic) tectonic-magmatic activation (TMA) are of special importance in the formation and spatial distribution of many important non-metallic raw materials in Serbia.

The most important parameters of the zeolite tuff deposits of Serbia explored so far [5] show us that, in terms of proven reserves, they are relatively small deposits on a global scale. The predominant zeolite mineral in our zeolite tuff deposits is clinoptilolite, while only in some cases it is mordenite. Figure 1 [3] shows a prognostic mineragenetic map of Serbia with potentially the most important Neogene basins for finding deposits and occurrences of zeolite tuffs.

## CONCLUSION

Based on all the above, it can be said that Serbia is a potential country in terms of the existence and discovery of zeolite tuffs, and thus the further development of the zeolite industry, ie their application in various fields. For that, it is necessary to continue detailed monitoring and study of geological and technological properties of our zeolite tuffs and their more complete characterization. Future research in the coming period in the aforementioned areas will almost certainly reveal some new sites with zeolite tuffs as the predominant and economically very interesting mineral raw material.

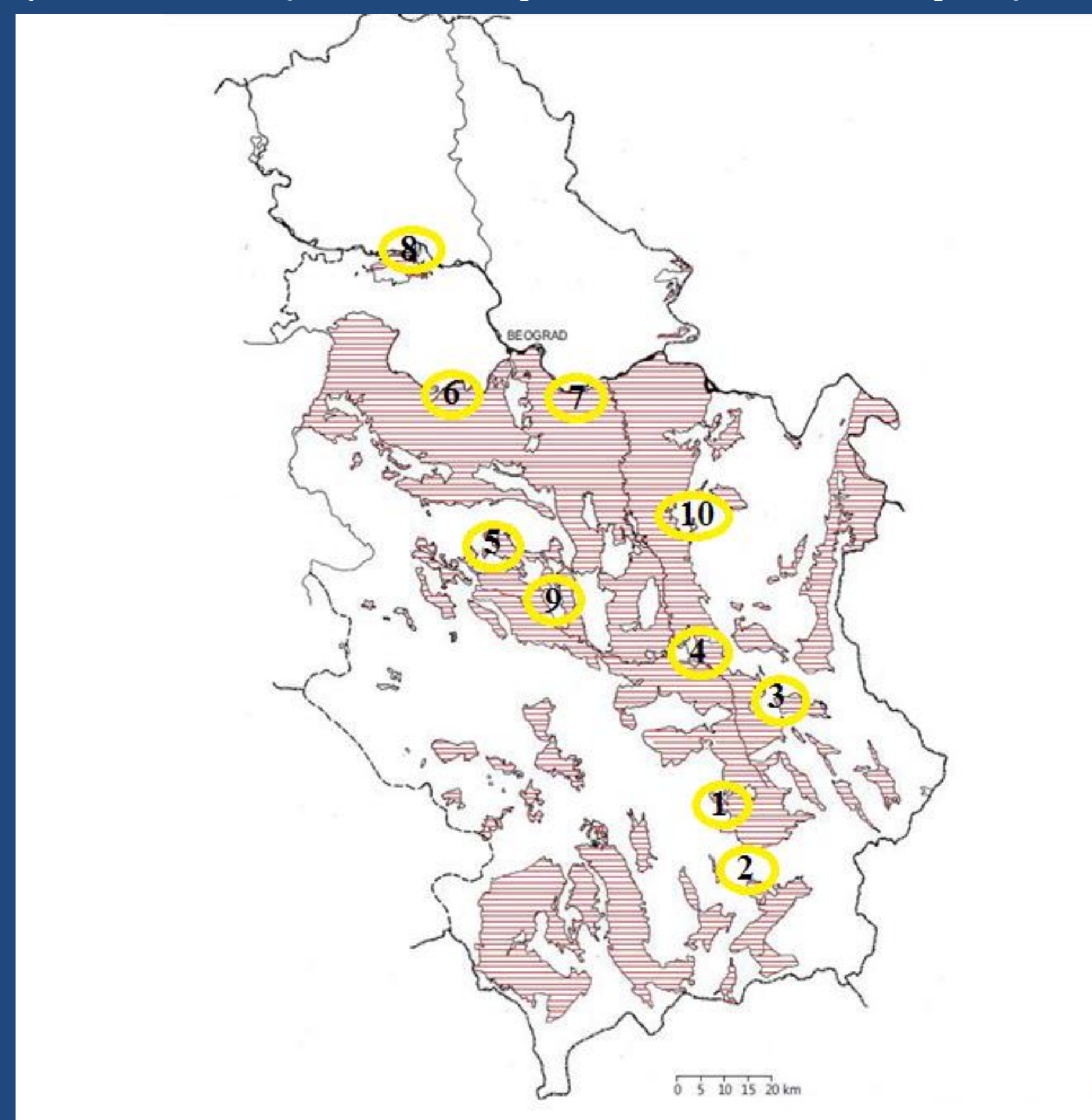


Figure 1. Forecast mineragenetic map of Serbia with potentially the most important Neogene basins for finding deposits and occurrences of zeolite tuffs (1. Vranje basin; 2. Krivorec basin; 3. Toplica basin; 4. Kruševac basin; 5. Valjevo-Mionica basin; 6. Posavina region - Tamnava basin, 7. Slanci basin, 8. Fruška Gora area, 9. West Moravian basin, 10. Eastern part of the Great Moravian trench (Sokobanja and Bogovina basin))

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