

Assessment of orogenic gold resources in Finland

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The potential metal resources in undiscovered orogenic gold deposits in the Finnish bedrock were estimated down to 1 km depth using the USGS 3-part quantitative assessment method. A grade-tonnage model was constructed based on data from known Fennoscandian and North Australian orogenic gold deposits.

Eight permissive tracts were delineated for Archaean orogenic gold deposits, 13 for Palaeoproterozoic Karelian deposits, and 11 for Palaeoproterozoic Svecofennian deposits in Finland. The mean estimate of the number of undiscovered orogenic gold deposits is 18 for the Archaean, 45 for the Karelian, and 27 for the Svecofennian tracts.

The undiscovered resources estimated at 50 % probability in Archaean, Karelian and Svecofennian orogenic gold deposits in Finland are 140 t, 400 t and 210 t of gold, respectively. This is 55 % of the undiscovered gold resources in Finland. Based on comparison between the Finnish bedrock and areas with a longer exploration history for gold (e.g., parts of Australia and Canada), we consider these tonnages as conservative estimates for the metal content in undiscovered orogenic gold deposits in Finland.

The assessment work supports the findings of earlier and other current work, which suggest that all orogenic gold mineralisation in Finland is related to the Neoproterozoic (2.7–2.6 Ga) and Svecofennian (1.9–1.77 Ga) accretional and collisional orogenic events.

References:

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