

Results from gold exploration surveys within the Altai-Sayan region (Russia) from 2006–2015 and perspective trends for future gold exploration

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Gold exploration within the Altai-Sayan region from 2006-2015 and funded by the federal budget included a third generation of geological mapping at a scale of 1:1 000 000, a second generation of additional geological mapping at a scale of 1:200 000, and prospecting. Results included:

1. The 1:1 000 000 geological survey was carried out in the western and eastern parts of the Altai-Sayan region. The 1:200 000 mapping was concentrated in the south of the Krasnoyarsk region, in Kemerovo region, and in the border area of the Altai region and Altai Republic. The areas of the the latter more detailed mapping are those with the most economically developed regions, near recognized areas of major resources. They are often localized outside of perspective ore districts and ore units (nodes) that were previously highlighted during the more regional scale geological mapping. During the past ten years, FSUE VSEGEI has defined more than 3100 t of gold resources in category P3 (possible) as a result of the geological survey. However, more detailed exploration work has been conducted in just a few areas
2. Prospecting for gold ore was carried out at 52 project areas and concentrated in the south of Kemerovo and Altai regions, in the western part of the republics of Khakassia and Buryatia. With a few exceptions, these prospecting areas were originally identified on the basis of samples collected at different geochemical survey scales and from geological mapping at a scale of 1: 50,000 in the "Soviet" period. Most prospecting was conducted in the the areas with prognostic resources of P3 category approved by FSUE TsNIGRI. As a result of subsequent prospecting conducted from 2006-2015, new gold resources were predicted in P1 category (inferred) of about 300 t, for P2 (promising) of about 700 t, and for P3 (possible) of about 800 t.
3. There has been a significant increase of predicted gold resources of various categories and localization of priority targets based on the results of the geological survey work. Seventy-nine active licenses for gold exploration have been issued in the Altai-Sayan region, principally in the republics of Khakassia and Buryatia, and the Altai and Irkutsk regions. During the past 2-3 years, there has been an increase in the number of issued exploration licenses. The Altai region (Novofirsovskoye, Murzinskoye), and the republics of Buryatia (Zegen-Gol`skoye, Konevinskoye, Vladimirskeye), Tyva (Tardan, Kara-Bel`dyr), and Khakassia (Tibek-Mayskoye and Kommunarovskoye ore fields, Yelovoye deposit) have seen the greatest increase in gold reserves.
4. In the Altai-Sayan region there is a situation where exploration work on targets defined from 1950-1980 is extremely mature. However, in this vast region, systematic new work aimed at defining new areas for gold potential is needed. Such exploration research must include basic scientific and more applied studies to forecast areas of new opportunities for the region's gold resources.