

The discovery and exploration potential of Bogutu gold deposit, Tekesi County, Xinjiang, China

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Bogutu Gold Deposit is located in Tekesi County, Xinjiang, China. Geographical coordinate is Longitude 81°59'30"-82°06'00" and latitude 43°18'00"-43°20'00". The deposit is within the Tianshan Metallogenic Belt and nearby there are Axi Gold Deposit (epithermal, 4M oz), Jingxi-Yiermande (epithermal, 3M oz), Katebaasu copper gold deposit (porphyry, 3M oz) and Sawayaerdun gold deposit (orogenic, 4M oz) within China and some giant gold deposits outside of China such as Muruntau, Kumtor and Kalmakyr.

The deposit region is overlain by early Carboniferous volcanics and volcanoclastics which is the same as the rocks hosting nearby Axi and Jingxi-Yiermande gold deposits. National 305 Program sponsored stream geochemical sampling of various scale from 1:500,000 to 1:100,000 defined the regional gold anomalies in later 1980s, later on 1:10,000 soil sampling was conducted and Au-Ag-As-Sb anomalies were defined and by which four zones, i.e., Zone 1 to Zone 4 were divided. Zone 1 was tested by trenching and gold mineralization was found in early 1990s, follow up trenching at zone 1 along strike found the gold mineralization extension about 1000 m long within the northwest striking and southwest dipping faults. In late 1990s, local County Bureau of Mineral Resource followed previous trenching and exposed the southern half of gold mineralized body I₁ and mined the oxidized and heap leached and then Xinjiang Non-ferrous Bureau found the northwestern half of gold mineralized body I₁ and estimated gold resource of 80,350 oz. Recently Tekesi Qianhui Mining conducted over 50,000 m drilling and large amount of trenching and sampled over 70,000 samples during 2012-2013 campaign and estimated about one million ounces of gold resource at 2 gram per ton at Zone 1.

In 2015 an over 100 line kilometer dipole dipole IP survey was conducted covering the areas with soil gold anomalies and known gold mineralization at Zone 1. It is clear that gold mineralization occurs within high chargeability and high resistivity domains. Two other parallel belts with high chargeability and high resistivity at the hanging and footwall of the main gold mineralization of Zone 1 had been found.

Dipole dipole IP survey at Zone 2 to zone 4 found multiple high chargeability IP anomalies and ground MAG also interpreted multiple northwest striking faults which were confirmed to be parallel to gold mineralized northwest strike faults at Zone 1. At Zone 3, northwest strike faults coincide with dipole-dipole anomalies and soil anomalies especially As (up to 14,171 ppm) and multiple soil gold values over 200 ppb. In the gold arsenic in soil anomalies, various strike of faults developed and silicification, chloritization and pyritization and surface road cut already identified multiple gold mineralized bodies with gold up to 12.7g/t. Little drilling was conducted from Zone 2 to Zone 4 before. With all the geological, geochemical and geophysical work completed, drilling targets are ready to be tested. There is the potential to significantly increase the current gold resources by drilling at the favorable IP anomalies from Zone 1 to Zone 4.