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A Case Study of Technical, Social and Environmental Challenges for a Gold Project Development in Western Turkey

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ABSTRACT

Most developing projects face a range of technical and non-technical challenges, and examination of development histories can potentially provide insights into improved approaches to project development. The Kestanelik project in the Canakkale region of Western Turkey was acquired by Chesser Resources Ltd in 2008. The project was a known epithermal gold occurrence with a small amount of drilling, with exposed textures indicative of the boiling zones which commonly host gold mineralisation in low sulphidation epithermal systems. Sources of geological complexity in the project included extreme lateral and vertical changes in gold grade, mineralisation in multiple veins with a range of orientations, the possible presence of supergene enrichment in the system, and the existence of post-mineralisation faults which were likely to have displaced the favourable zones of gold deposition in unknown ways. Environmental challenges faced by the project included the existence of a community water source near the zone of mineralisation as well as a lack of suitable tailings disposal sites near the project. The project was also located within a known area of high seismic risk related to the North Anatolian Fault Zone. Social challenges also existed at the project at a range of different scales, with both support and opposition existing at nearby villages, in the local municipality and at the provincial capital. Competing land and water use as well as opposition to the use of cyanide were key challenges in this area. The project development was also taking place during a time in which the conditions for obtaining permits for mineral exploration and development in Turkey at a federal level were severely deteriorating. The company took extensive measures to address these challenges through proposal of a dry stack tailings system, allocation of significant resources to social communication, support and employment, and investigation of potential water supplies for the project that did not impact on ground water supply to local villages. Despite the economic viability of the project, and the identification of strategies to mitigate environmental risks and local social concerns, the combination of permitting challenges and market factors led to the sale of the project, which has now been put into production by a local company.