

## **Sediment-hosted gold deposits in southeast Asia**

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Sediment-hosted gold deposits are becoming more widely recognized in the Southeast Asian region. They are characterized by very fine-grained gold typically occurring in stratabound jasperoid replacement and structurally controlled orebodies in calcareous or carbonaceous sediments, which are commonly distal to porphyry copper-gold deposits. Gold mineralization is associated with anomalous As-Sb-Hg-Tl and is normally concentrated in the arsenic-rich rims of pyrite and arsenopyrite grains (often refractory). The examples discussed in this presentation are located in Southeast Asian countries and all occur in island or continental arc terrains. Sediment-hosted gold deposits have many features similar to the Carlin deposits in Nevada, however they differ in tectonic setting, their shallow level of emplacement, fluid chemistry and probable metal source. As such, the Southeast Asian examples described in this compilation may be classified as “Carlin-like” and not “Carlin-type”. Furthermore, they appear to represent a sub-class of low temperature epithermal deposits with most occurrences showing late-stage low sulfidation colloform quartz vein events. Indeed they are better described as distal sediment-hosted epithermal gold deposits. Several examples are multi-million ounce deposits, Sepon in Laos has an endowment of more than four million ounces of gold. Mesel in Suluwesi and, Bau (Jugan and Tai Parit) in Sarawak also possessed multi-million ounce resources prior to mining. Structurally controlled feeder zones frequently contain higher grade gold mineralization e.g. Mesel, and constitute valid exploration targets. More recently discovered deposits such as those in Myanmar (Gegalaw, Taungzaw and Katsena) and the Philippines (Hijo and Las Cogon) remain to be thoroughly explored. Most of the deposits (Sepon, Abong, Sihayo, Jugan, Tai Parit, Hijo and Lascogon) can be directly linked spatially and genetically to gold-copper porphyry intrusive centers. It is postulated that those localities with no obvious connection to porphyries (Mesel, Ban Bak, Kyaukpahto, Gegalaw, Taungzaw and Katsena) may represent district-scale targets for undiscovered porphyry copper-gold deposits. In terms of discovery techniques of the 11 SHG deposits presented here, several were sites of historical mining (Mesel, Bau and Kyaukpahto). The majority, however, were virgin deposits discovered in the last 25 years by clever area selection followed by systematic regional geochemical exploration programs and routine geological inspections. At the project scale, electrical resistivity techniques such as CSAMT and IP have proved to be useful for mapping blind jasperoid bodies and associated “feeder” zones and silicified structures. Traditional field mapping and stream float sampling in tropical regions are also effective exploration tools. Deposits which have significant jasperoid development could have conspicuous positive topographic relief.