

DETERMINING THE SOURCE ROCK OF GEM DEPOSITS FOUND IN HALANGODA LAKE AT DIYATHALAWA

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Abstract

Sri Lanka has been famous all over the world for its vast potential and vast varieties of gemstones. 25% of the landmass of the country is gem bearing. The studies clearly indicate the vast gem potential of Sri Lanka yet to be unearthed. However, gem deposit exploration in Sri Lanka is still based on more traditional methods than modern technical methods. Application of modern scientific methods in gem exploration is therefore a national requirement for Sri Lanka. Halangoda lake was constructed in the premises of the Sri Lanka Military Academy (SLMA) at Diyatalawa and it consists of gem deposits. The lake was fed by two streams while narrow valleys and hillocks are presented around the lake. Well defined crystal shaped and sub angular gemstones are found from this deposit. The geological mapping procedure was carried out to determine the source rock of this peculiar gem deposits which can be great support to identify same kind of gem deposits in the area nearby. Base map was prepared using 1:10,000 topographic map and satellite images. The road traversing method was selected to perform geological mapping of the lake area. Global Positioning System (GPS) was used to mark precise location of outcrops. The strike and dip of the foliation planes were measured using the Brunton® compass. Their lithological units were named and other special geological features were recorded. The identified three lithological units are Garnet biotite sillimanite gneiss (Khondalite), Garnet hornblende biotite gneiss and Quartzofeldspathic gneiss. Some of Quartzite traces which are not in mappable scale were found. The general strike and dip of foliation of the north eastern part of the map were N 80° E and 30° NW respectively while the general strike and dip of foliation of the south western part of the map were N 40° W and 40° NE respectively. Khondalite is the gem bearing rock type found in this area. Geological, geomorphological and hydrological features also prove the possibility of transportation of gemstones from the khondalite rock in to the lake. Therefore khondalite is the source rock of gem deposits found in Halangoda lake at Diyathalawa.