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Environmental Impact of Gem Mining: A Case Study in Kalu Ganga Catchment, Ratnapura

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ABSTRACT

Ratnapura district is the most renowned and well known district in Sri Lanka for its high concentration of gem deposits from the ancient days. Even though gem mining is economically important and helps to generate a high income and employment opportunities, at the same time it causes adverse effects to the environment. Hence, a study on environmental impact of gem mining in Ratnapura has been carried out and primary data gathered from field surveys have been analyzed to make recommendations to mitigate or avoid the disastrous issues.

Gem mining along Kalu Ganga and its tributaries has directly interrupted continuity of sediment transport and has resulted in induced sedimentation in the river. It has also made channel bed and bank prone to erosion producing channel incision, destruction of fauna and flora along the channel bed. Furthermore, degradation of land, damage to the vegetation cover, land use, and to man made structures have been observed. A decline of potential gemming areas, generated income, agricultural production, and education, were also noted. Increase in the cost of raw materials and shortage of capital expenditure are some of the socio-economic issues faced by the mining industry today.

Among the different gem mining methods, river bed mining with the use of gravel pumps and other mechanized mining methods such as bulldozers have caused hazardous effects. Therefore, it is vital to introduce suitable eco-friendly mining methods which are in conformity with factors such as geomorphology, weathering condition, and sensitivity of the area to minimize or avoid damage to the environment. Management and monitoring of gem mining in the area must be carried-out on a regional basis. Once licenses are issued, continuous assessment should be carried out regularly to prevent further destruction of the environment and gem industry.