A SUSTAINABLE METHOD TO REHABILITATE THE ABANDONED QUARRIES OF ANURADHAPURA DISTRICT

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Quarrying is the most common form of mining activity in Sri Lanka. At the completion of quarrying activities most of the pits are left as permanent open craters. Later, these become uncontrolled places of water harvesting or garbage dumping sites leading to many socio-economic issues as well as raising many public health and safety concerns. However, these adverse effects were mostly disregarded, and motivation for post-mining site rehabilitation is minimal in spite of the rules and regulations in place.

The focus of this study was to find appropriate rehabilitation methods of minimizing environmental, sociological and economic impacts after quarrying activities. Anuradhapura District was chosen for this pilot study as it has the third highest number of quarries in Sri Lanka and a large number of abandoned mining pits, according to the records of Geological Survey and Mines Bureau (GSMB). Also, this district accounts for 11% of the country's land surface and falls under the Dry Zone, emphasizing the necessity for environmental management. Accordingly, a preliminary survey on the stakeholder concerns were conducted at a number of selected abandoned quarry sites in Anuradhapura District. The priority was to harmonize the rehabilitation approach with local community requirements with a minimal investment and optimum use of existing conditions. Observations reveal that among the contributory factors leading to adverse environmental, safety, health and sustainability situations are financial and technical constraints as well as regulatory issues. In addition to the above, the geology and hydrology of the sites of interest, was also considered for the decision making on the rehabilitation technique.

The evaluated results favor "artificial recharging of groundwater by continuing the pits to facilitate the water harvesting under controlled conditions". Proper sign posts and health, safety information display with safety fences is a mandatory segment of the proposed rehabilitation approach. Enhancing awareness among the local community on the rehabilitation method and safety concerns, would ensure long term sustainability of the rehabilitation investment.

Keywords: Mining, rehabilitation, groundwater, dry zone of Sri Lanka