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### **Environmental impacts of gem mining in Sri Lanka**

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The sustainability of the gem mining industry for over past thousands of years rested on the unique traditional mining methods and scale. At present with the increase in production scale, mining is becoming a hazard to the environment. The main purpose of this study is to investigate the current status of gem mining industry and to identify significant environmental damages caused by gem mining. Primary data was gathered from a questionnaire survey of 378 mines of the six gem mining regions and household questionnaire survey of 100 households in adjacent areas to the mining regions. Additional data were collected from the Gem and Jewellery Authority regional officers, and from other secondary sources. The collected data were analyzed to identify the major environmental impacts.

Results revealed three main environmental impacts due to gem mining including, the spread of diseases (especially malaria), potential loss of agricultural lands (especially paddy lands), and sedimentation and siltation of surface water bodies. Around 29 % of the mines are scattered in paddy lands destroying 30 % of productive paddy fields. The calculated average loss of paddy yield equals to 1271.9 metric tons per year. Land loss is cumulative and when paddy production is lost for a long period of time it could significantly affect national production. Around 75 % of the villagers use mosquito-bite prevention mechanisms such as nets or coils indicating the high abundance of malarial and other vectors. 23 % of people have lost their source of water due to siltation of surface water bodies due to dredging and discharging of used water from mining activities. Miners destroy 1800-2000 rubber trees and 150 - 200 arecanut trees per annum. Natural soil erosion, removal of vegetation cover, flooding, landslides, ground water depletion, risk and/or damage to wildlife, reduction of irrigation efficiency, and other damage including cracking of walls of houses and other manmade structures are among the other significant environmental impacts of gem mining. The results highlight the importance of adopting appropriate mitigatory measures in the short term and the necessity of adopting proper policy measures in the long term to reduce negative environmental impacts.