

## **A Geo-Spatial Analysis to Identify the Land Losses and Land Use Changes Due to Clay and Sand Mining – A Case Study of Ma-Oya Left Bank in Katana Divisional Secretariat Division**

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Mining is one of the main methods to extract mineral resources. This research carried out to identify the loss of land and land-use changes due to clay and sand mining in the lower Ma-Oya river bank of Katana Divisional Secretariat Division. Geographically, environmentally and socio-economically the Ma-Oya river basin is one of the unique river basin in Sri Lanka. The length of Ma-Oya River is 134km and the size of the river basin is 1528Sq.km. During the last few decades, due to sand and clay mining both left and right river banks of the lower Ma Oya river basin have been highly degraded.

Field observation, Participatory Rural Appraisal (PRA) and Global Positioning System (GPS) data and google satellite images were used as primary data. Land use maps of 1956, 1984, 2018 and resource report of Katana DS Division were used as secondary data. This has done using mix method. QGIS 2.8 and Arc GIS 10.1 and MS Office applications have been used to analyze the spatial land-use changes and calculated the extent of land losses. The Inverse Distance Weighting (IDW) analysis and geo-processing techniques have been applied to determine multivariable interpolations.

The study revealed that Ma-Oya left river bank highly changes and loss of land due to critical natural resource use issues. Especially clay has been excavated up to 835 hundred meter distance from the left river bank. As a result, a considerable amount of land and land uses have been loosed. 119 hectares of the total land area were loosed and according to the present value of lands in the area, it was the amount of Rs. 2,728,774,720 (27287 Rs/M). Respectively, 63.25ha of coconut lands, 42.24ha of home gardens, 9.79ha of paddy lands, 2.68ha of scrubs and 1.24ha of croplands have been converted into water bodies or bare lands in lover left bank of Ma-Oya.

Keywords: Land Degradation, Spatial analysis, Clay and Sand Mining, Land use change and land loss

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