

## **Need of Catchment Management for Reducing the Risk of Landslides Disaster: A Case Study from Walapone Area of Kurundu Oya Sub Catchment in the Mahawelli Basin**

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### **Abstract**

Landslide disaster risk reduction and catchment management are inseparable. It is well noted that the anthropogenic activities due to the increase of population in the central highlands of Sri Lanka by which the use of lands has dramatically increased. This paper presents some findings of a case study carried out to investigate the relationship between changes in land use patterns with landslide occurrences in the Walapone area of Kurundu Oya sub-catchment in the Mahaweli Basin. Hence, the data on landslide occurrences of the study area were gathered from National Building Research Organization (NBRO) and incorporated with integrated land use data of Google Satellite Images extracted for three decades from 1991 to 2021. The NBRO data indicated that the study area is characterized by a high frequency of landslide occurrences. Further, the number of buildings and farming areas have also increased in the areas of high and medium hazard as marked by NBRO. Hence, the well-noted fact is the increase in the number of cutting failures evidencing higher human influences that caused land use alterations drastically. Those were also significantly reported by the analysis of satellite imagery data. Further, this shows a positive correlation in-between the frequency of landslide occurrences and land use changes in the Kurundu Oya sub-catchment. Finally, the results will indicate the need for catchment management that possibly is reduced the risk of landslide disasters. Therefore, it can be further characterized to isolate the high hazard areas, improve the damage areas in medium hazard and allow to use of low hazard areas only with NBRO recommendations. Also, it can be suggested that structural and Non-structural mitigation must be carried out.

**Keywords:** Kurundu Oya sub catchment, Landslides, Cutting failures, Reducing Risk, Catchment Management

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