

**Development of flood inundation map for Deduru oya basin and flood risk analysis: public participatory approach**

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Sri Lanka is a country which is vulnerable to flood hazards. The Disaster Management Center (DMC) of Sri Lanka is responsible for keeping records on natural hazards which occur in the country. Kurunegala District is one of the areas vulnerable to flood hazards. However, no study has been conducted in this area regarding flood hazards and their impacts. The aim of this study was to analyze the risk score of the Kuliyaipitiya Divisional Secretariat Division (DSD) of Kurunegala district which has recorded a high vulnerability to floods. With the data and information collected through a community participatory approach, a Hazard, Vulnerability and Risk assessment (HVRA) was done and the most vulnerable areas to floods in Kuliyaipitiya DSD were identified. With ArcGIS 10.1 and the Hydraulic model LISDFLOOD-FP, a flood inundation map was developed for the Deduru oya basin. The hydraulic model results were presented in a Digital Elevation Model (DEM) to show a more detailed flood inundation map. The model results were simulated with the actual flood inundation map. With this, future floods could be predicted and appropriate precautionary measures could be taken in the areas vulnerable to floods.

**Keywords:** Daduru Oya, Digital elevation model, flood, GIS, participatory approach