

## Evaluation of Flood Risk of Transport Infrastructure Using GIS Technology

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Floods are not rare incidents in Sri Lanka. Historical record shows that Sri Lanka had experienced with many of catastrophic flood disasters. As a result of flooding, hundreds of thousands of lives, property, physical infrastructures are loss, damaged or destroyed. Especially, the transportation system & its infrastructure that includes roads & railways are frequently affected by floods. Neither a scheduled process nor any other resilience assessment plan or concepts to anticipate and reduce the impacts due to floods are available other than the traditional flood disaster management process of reconstruction. Hence, there is a need for an effective flood resilience assessment process to identify possible risks to the transportation system.

Information such as terrain, rain fall, drainage pattern that are relating to the factors affecting flood risk on transportation infrastructure is available in scattered manner. However, this information has not been analyzed in an integrated manner to identify the flood risk on transport infrastructure. Identification of flood risk of existing and proposed transport infrastructure will be very useful to mitigate impacts due to any type of flood disaster.

The paper presents a methodology developed to identify possible risk areas based on flood information available using Arc GIS platform. Data collection was done based on library & field surveys. Along with the literature survey relevant data such as flood records, physical infrastructures data, geographical & climatic data were collected and a GIS data base was prepared. A methodology was developed to identify possible disaster risk based on the information available using Spatial Analysis, 3D Analysis tools available in Arc GIS for the analysis and to produce results in map media.

**A case study is presented to illustrate the application of the proposed methodology.**

**Key words:** *Transport Infrastructure, Flood Mitigation, Risk Assessment, Spatial Analysis, Disaster Management*

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