

Gully erosion in Madagascar: causes and impacts

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Soil erosion has been recognized as the main cause of land degradation worldwide and gully erosion is currently considered as one of the most impressive and striking erosion type. This global environmental problem has numerous causes (both natural and anthropogenic) and inflict serious socio-economic problems all around the world.

The present study aims to discuss the occurrence and environmental issues related to lavakization in Madagascar and its impact on landscape (badland formation), land use management, flora and fauna, infrastructures, soil properties and human life itself. We assembled and reviewed lavaka researches since 1953. Exact location of the field surveys, cited triggering factors and results of these scientific papers have been studied in detail and compared with our data collected using satellite imagery. Lavaka distribution was analyzed using GIS methods and the relation between their density and different factors was studied.

An overview of the many contributing factors (climate, topography, geology, vegetation cover, fault systems, tectonism and land use including inappropriate cultivation and irrigation systems) is given in order to better understand lavaka formation, distribution and impacts.

Synthesis of previous researches might help us define area susceptible to gully formation. This can be used to determine prevention priorities for farmers, to manage their lands sustainably.

This is ILARG contribution 18.