

**ROLE OF LAND USE AND LAND COVER CHANGE IN FLOOD RISK
MANAGEMENT IN KILIFI COUNTY**

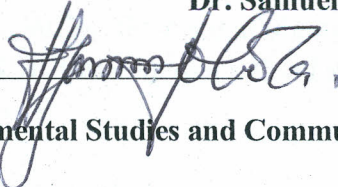
**Maina Paul Mwangi (B- EPM)
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Supervisors:

Dr. Samuel Ochola

Signature:  Date: 10.09.2014

Department of Environmental Studies and Community Development, Kenyatta University

Prof Simon Onywere

Signature:  Date: 26/8/2014

Department of Environmental Planning and Management, Kenyatta University

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Abstract

An increase in the size of population has led to changes in land use and land cover to suit the needs of the land users in Kilifi County. Land cover changes have led to an increase in the number of floods after precipitation events. Land use and land cover change alter natural drainage systems, impact on surface runoff and affects infiltration capacities- factors which contribute to flooding. The impacts of floods are far reaching affecting all spheres of life. Floods cause loss of lives, disruption of communication networks, water borne diseases and destruction of property. Management of floods begins through mapping of flood prone areas. The main objective of the study is to identify areas in Kilifi County that are vulnerable to flooding with respect to land cover maps and generate a GIS- based flood risk map. The specific objectives are to determine the rate and nature of land use and land cover changes occurring in Kilifi in the period between 1990 and 2013, establish the impacts of land use and land cover change on surface runoff and infiltration capacities and to generate a flood risk map for Kilifi County. This will help disaster management proponents within the county and the nation at large in filling the knowledge gap required in management of floods. Results could also be replicated to other areas to solve similar problems. Three sets of Landsat images (1990, 2000 and 2013) will be used for the study and will be classified into forests, grasslands, croplands, settlements, wetlands and other land- which includes shrublands, scrublands and wasteland. Analysis and interpretation of maps will be done using ArcGIS 10.1. Infiltration experiments will be conducted for each of the land cover classes to using a double ring infiltrometer to determine the infiltration rates. A 30m resolution Digital Elevation Model (DEM) for the area will also be analyzed in ArcGIS 10.1 to obtain the slope, stream network, buffer, flow accumulation and the elevation. All these layers will be overlain in ArcGIS 10.1 to generate a flood risk map.