

ABSTRACT

Rural urban migration in developing countries has contributed to increase in population of urban centres with majority of the migrants settling in poorly drained informal settlements because they cannot afford to rent or buy decent housing. Over 60% of the urban population in Africa is estimated to live in informal settlements. In Kenya, many of these settlements are located on marginal land with little or no consideration for storm water management. This research sought to establish sustainable storm water management in Nyalenda informal settlement, a slum suburb in Kisumu, Kenya. The objectives of the research were to assess flooding levels in the slums, identify the causes of floods, assess the effects of flooding and assess the storm water infrastructure components that exist within Nyalenda informal settlement. Simple random sampling technique was used to select 330 respondents from the 16,631 households in the 14 villages in Nyalenda Informal settlement. Primary data was collected through observations, questionnaires, 10 key informant interviews and 4 focus group discussions while secondary data was sourced from books and journal publications. Data analysis was done through quantitative and qualitative statistical analysis techniques. Descriptive statistical analysis method was used to describe the rainfall intensity. The frequency, mean, variation and percentage distribution of rainfall and floods were examined. Regression analysis was used to predict the relationship between flood levels and rainfall intensity. Possible solutions were identified and considered in a multi criteria analysis to make a selection of the best solutions. Findings from the research indicated that floods in Nyalenda informal settlement develop when fast moving storm water flows into the low-lying flat areas in Nyalenda informal settlement at high speed but the inadequate storm water infrastructure cannot clear all the storm water. Other causes include lack of maintenance on the existing drainage infrastructure including rivers Nyamasaria and Auji, Ouru stream, culverts, bridges and open channels. Floods result in spread of water borne diseases, injuries, destruction of transport and communication, buildings and property, loss of human life, displacements and emotional stress. The best solutions consist of non-structural solutions such as increasing awareness, early warning systems, cleaning of existing infrastructure and mapping of flood hot spots. Structural solutions include planting vegetation cover, maintenance and de-siltation of drainage system. Development of evidence-based policy in flooding should be a priority for people who are responsible for planning for and responding to emergencies, healthcare, social care, and mental healthcare services. The key stakeholders and

the residents should be involved in the implementation process especially during the making of the master plan.