

ASSESSMENT OF INDISCRIMINATE HOUSEHOLD SOLID WASTE DISPOSAL AS A POTENTIAL TRIGGER OF FLOOD IN GESSE, BIRNIN KEBBI, KEBBI STATE, NIGERIA

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Abstract

This study aimed at assessing indiscriminate household solid waste disposal as a trigger of flood in Gesse, Birnin Kebbi, Kebbbi State, Nigeria. The study entailed a field assessment of waste dump sites, determination of man-made drainage capacity, street width pattern and slope profile characteristics. A Garmin GPS was used to determine waste dump locations. The slope angles, was determine with a 100m steel tape and ranging poles were used for profile length. Data obtained from the study were summarized using descriptive statistics. Results show that the largest waste dump, located at N 12° 26.561 E004° 12.682 along street N1 was 239.3 m³wide, with a volume of approximately 47.84 m³/yr. The streets width pattern assessment revealed that streets were often overtaken by wastes dump sites, such as street E2 which narrowed down from 7.2 m at the beginning to 4.3 m and 4m in the middle and end respectively. Results on drainage characteristics show that the drainages are few or non-existent in most parts of the study area. Similarly, the study identified four (4) classes of slopes in the study area with a dominant slope of 5%, indicating a gentle to moderate relief. Overall, the result shows that indiscriminately disposed household wastes significantly influence flood generation in the study area while other factors such as streets width, slope characteristics and inefficient man-made drainages were found to mutually affect the travel time of runoff flow, thereby generating floods in the study area. Recommendations from this study include improved technology in flood hazard mapping and land suitability assessments, linking research findings to infrastructural planning and developing strong public- private partnerships between government and residents for effective policy implementation.

Keywords: Household Waste, drainage, flooding, slopes, capacities