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## Land Capability Index Mapping for Waste Disposal Landuse Option Using Geographic Information System (GIS) in Enugu Area, South Eastern Nigeria

PDF (Size: 13803KB) PP. 444-461 DOI: 10.4236/jgis.2012.45049

### Author(s)

A. A. Onunkwo, Samuel O. Onyekuru, G. I. Nwankwor

### ABSTRACT

The projected 300% growth rate in the population of Enugu area and its environs by the year 2020 and the expected increase in waste generation necessitated the need to map out areas for waste disposal for future utilization and as a protective strategy for the environment in Enugu area. Land capability index mapping using Geographic Information System (GIS) is one of the appropriate tools required for solving this problem. A total of 12 landuse determinants were selected as thematic data layers, and as basic factors influencing the choice of waste disposal landuse option in the area. The themes (thematic maps) generated from field/laboratory measurements and from literature, include slope, water table, surface and subsurface water conditions, elevation, geology, soil, drainage and geo-structural stability (fault, erosion, landslide and flooding) maps. The maps were scanned, digitized, georeferenced, and polygonized using autocard drawing capabilities to convert them into vector format and later exported to arc view software for analysis. The final processing using overlay model builder yields layers that display areas of preferred waste disposal sites in a map form, which generally shows areas of varying suitability (suitable, moderately (low) suitable and unsuitable). The waste disposal map of Enugu area shows that blocks1 (Obeagu area) and 3 (Ebe/Nsude areas) represent suitable and unsuitable areas, respectively, while block 2 (Ngwo area) has low suitability for waste disposal.

### KEYWORDS

Landuse; Thematic Maps; Waste Disposal; Land Capability

### Cite this paper

A. A. Onunkwo, S. O. Onyekuru and G. I. Nwankwor, "Land Capability Index Mapping for Waste Disposal Landuse Option Using Geographic Information System (GIS) in Enugu Area, South Eastern Nigeria," *Journal of Geographic Information System*, Vol. 4 No. 5, 2012, pp. 444-461. doi: 10.4236/jgis.2012.45049.

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