

Climate and Landfill Development and Management in Developing Countries with Arid and Semiarid Environments (Namibia)

S. Mwiya Ph. D

Abstract

Arid and semiarid regions of the world encompass about 48 million square kilometres, which is nearly one third of the earth's land surface. These regions have over the years been considered as ideal places for disposal of different types of wastes due to low precipitation, high day temperatures, thick unsaturated zones and high evapotranspiration. In developing countries such as Namibia, the study area, with arid and semiarid environments, waste disposal sites are still regarded as mere dumps. While the design and management of municipal solid waste disposal facilities have changed dramatically in the developed world. Climatic components, which include precipitation and its mode of occurrence, radiation, humidity, temperature, wind and evapotranspiration, have the most influence on the design and performance of waste disposal sites in arid and semiarid environments. In particular, evapotranspiration has a direct role on the water budget and the quantification of evapotranspiration is critical to achieving optimum performance of waste disposal sites in arid and semiarid environments. Local knowledge of the climatic patterns is vital for developing economic, safe and sound waste disposal sites in arid and semiarid environments.

Keywords: Climate, arid and semiarid environments, landfills, developing countries, Namibia