

**SOLID WASTE POLLUTION LOADS FROM BEACH HOTELS IN
MOMBASA AND KWALE DISTRICTS**

By

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ABSTRACT

This thesis describes the results of a study carried out during the high tourist season between September 1996 and February 1997, to determine solid waste types and quantities from some six, major beach hotels in the South and North Coast Mombasa. It examines the factors and processes that affect solid waste management in the region. The output of this assessment was expected to provide timely baseline data on quantities of waste generated in beach hotels, vital for waste management programmes.

The six hotels included in the study were; Severin Sea Lodge (400 beds), Diani Sea Lodge (350 beds), Mombasa Beach Hotel (302 beds), Leopard Beach Hotel (324 beds), Jadini Beach Hotel (346 beds) and Africana Sea Lodge (322 beds). The first two hotels were chosen because they have waste management programs. All the hotels had an average bed occupancy of over 50%, and were therefore large generators of solid waste.

Waste components from the six hotels were separated at source and weighed each day for the entire sampling period for each hotel. In each case, weighing was done using a 50 kg spring balance. Bed occupancy figures were obtained from the management offices of each hotel. Waste loads and generation rates were calculated from the waste component weights and bed night data. The results were analyzed using the Microsoft Excel statistical package.

The mean per-capita waste generation rate for the hotels studied was found to be 1.90 kg/person/day and the relative proportions by weight of the waste categories was found to be; paper 3.5%, plastics 3.3%, tins 1.7%, glass 4.5%, food waste 79 %, cartons 2%, residual waste 6%. The rates of generation of waste components at the various hotels were also calculated. The mean waste loads from the hotels ranged from 959.5 kg/day at Jadini Beach Hotel/Africana Sea Lodge to 358kg/day at Mombasa Beach Hotel. Using waste generation rate data and bed-nights the annual solid waste load for each of the six hotels was found to be 362 tonnes for Jadini Beach Hotel/Africana Sea Lodge; 200 tonnnnes for Leopard Beach Hotel; 159 tonnnnes for Diani Sea Lodge; 192 tonnnnes for Severin Sea Lodge and 150 tonnes for Mombasa Beach Hotel.

For each hotel, the existing waste management practices were examined. Limited recycling, re-use and composting practices were undertaken by some of the hotels such as Mombasa Beach Hotel, Severin Sea Lodge and Diani Sea Lodge. Tins were re-used for planting tree seedlings and flowers. Glass and cartons were collected by dealers for recycling and food waste was used to feed pigs.

The results of the study should make it is possible to develop a feasible waste management concept for the hotels, because the proportions of the individual component materials in the generated waste is described in the study. The results of the study indicate that there is potential for recycling, re-use and composting of the waste generated. It is therefore recommended that hotels effectively separate waste at source to ensure high quality waste components for further processing. This will help to reduce the costs of waste disposal, minimize health risks and improve the environmental quality.