

## **Plastic waste management methods: case study of Watamu, Kilifi County, Kenya**

### **Abstract**

Developing countries, particularly within Sub-Saharan Africa have to contend with challenges of urbanization and increased resource consumption. Among the emerging environmental issues is the haphazard disposal of plastic waste in both urban and rural Kenya leading to lethal and sub-lethal effects on humans and other living things. Notably, cases of humpback whales getting entangled in nets and endangered turtles ingesting plastic waste found along Watamu beach, Kenya have been documented. The aim of the study was to assess plastic waste management in Watamu ward. A social survey was conducted to determine the plastic waste disposal methods while stratified random sampling was used to collect data from households in four administrative units within Watamu. Primary data were collected using an observation schedule, a structured questionnaire, key informant interviews, and secondary data. Data were analysed using descriptive statistics, and inferential statistics (the Freeman-Halton extension of the Fisher's Exact test). From the results, only 0.7% of the respondents recycled their plastic waste. 72.9% of the respondents were females who indicated that they managed plastic waste around their homes. Plastic waste was disposed of mainly at open dumpsites, and burning, or discarding as litter. However, 93.6% of the respondents re-used some plastic containers for food, water, and oil storage. There was a significant difference in terms of how the respondents re-used their plastic waste among the four administrative units ( $FH = 36.437, p = 0.005$ ). Reusing of plastic waste was highest among unemployed households. In conclusion, the current plastic waste disposal methods are not environmentally friendly. Recycling of plastic waste is practised on a small-scale despite its potential to generate income. We recommend educational campaigns and adoption of sustainable and affordable plastic waste disposal methods in the study area. The campaigns should be spearheaded by the relevant agencies including the county government of Kilifi.

**Keywords:** Plastic waste, Recycling, Re-use, Watamu, Waste management