

## **Challenges associated with the management of post-consumer polyethylene terephthalate packaging bottle waste in Harare urban, Zimbabwe**

Matambo Farai and Steven Jerie

### **Abstract:**

This study analyses challenges associated with management of PET beverages bottle waste in Harare Urban, Zimbabwe. Quantitative data collection instruments used included structured questionnaires and geo-spatial data collection. Qualitative data instruments used included direct observations, open-ended questions, structured interviews (audio and videos) as well as field notes. Fundamental to the quantitative data collection process was the use of Geographic Information Systems (GIS) and Earth Observation Tools. Near-real time geo-spatial data was collected using Mobile Data Collector (Open Data Kit-ODK), was analysed (using ArcView GIS, QGIS, SPSS and MS Excel) and then presented for all the attributes associated with this particular research study. Geo-referenced data was collected from a total of 328 outlets and 299 consumers and households. Challenges associated with PET waste management in Harare include inadequate collection infrastructure, consumer behaviour, volatility of oil and PET global markets and the lack of a robust PET waste policy that addresses these challenges. Environmental and health hazards emanating from these challenges included reduced aesthetic value, blockage of drainage systems, toxic gas emissions from PET waste burning, reduced productive land, leaching of hazardous substances, high incidence of malaria and cholera and ingestion by wildlife. In order to address the generation and distribution of PET waste, the primary audiences are manufacturers of beverages packaged in PET Bottle. The manufacturers need to focus on bottle light weighting. This means that less resin are used to manufacture the same bottle and this ultimately reduces the amount of PET waste generated by weight.