

Developing a Sustainable Integrated Solid Waste Management Framework for Rural Hospitals in Chirumanzu District, Zimbabwe

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Abstract

This paper focuses on developing a sustainable integrated hospital solid waste management framework for rural hospitals in Chirumanzu district. Descriptive cross-sectional design encompassing qualitative and quantitative paradigms was used to collect data from 105 and 55 healthcare workers at STT and HC, respectively, and 9 interviewees. Questionnaires, observations, interviews, existing literature, water, and soil samples were data sources. SPSS and ME were used to analyze quantitative data and content analysis for qualitative data. Hospitals generated pharmaceutical, chemical, radioactive, cytotoxic, sharps, infectious, pathological, general waste, construction, demolition, and electronic waste. General waste was 77.35% at STT and 79% at HC, and hazardous waste was 22.65% at STT and 21% at HC. Sharp containers, pedal bins, buckets, plastic bags, and cardboard boxes were storage receptacles. Respondents at STT (72.4%) and HC (69.1%) demonstrated that sharp containers and pedal bins were highly used. Participants at STT (86.7%) and HC (78.2%) noted that solid waste receptacles were emptied on daily basis. Open pits, burning, dumping, incineration, and auto-way pits were disposal strategies used. Respondents at STT (44.8%) and HC (41.8%) indicated that incineration was highly used. Disposal strategies cause soil, water, and air contamination while causing ailments to people. Solid waste management improvement requires resources, raising healthcare workers awareness, technology utilization, stakeholders' collaboration, and PPE/C. The framework assists to guide hospitals to apply recycle, reuse, and recovery which support CE. The framework enhances socio-economic development, stakeholder participation, and conformity to legal frameworks and reduces waste management cost while facilitating attainment of SDGs, AA 2063, and ZV 2030 goals.

Keywords: Rural hospitals, Hospital solid waste, Management strategies, Environmental health risks, Framework, Circular economy