CHARACTERIZATION AND QUANTIFICATION OF LABORATORY WASTE AS A MEASURE TOWARDS EFFECTIVE WASTE MANAGEMENT IN THE *RAJARATA* UNIVERSITY OF SRI LANKA

A.G.N.T. Gunasekara and D.M.S.H. Dissanayaka

Department of Agricultural Engineering and Soil Science, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.

Many of the Sri Lankan university laboratories lack waste management facilities. Less effective measures of hazardous waste disposal may affect the environment and harm laboratory staff. This study aimed to characterize and quantify the laboratory waste generated in the six faculties (Agriculture, Applied Sciences, Management Sciences, Medical & Allied Sciences, Social Sciences & Humanities, and Technology) of the Rajarata University of Sri Lanka (RUSL) to propose an effective waste management plan. Data collection was done using a questionnaire survey and interviews with the laboratory staff. The collected data were analyzed quantitively using MS-Excel software. According to the results, all the faculties except the Faculty of Management Studies and Social Science & Humanities generate hazardous waste materials throughout the year. Sixteen chemical and biological laboratories are functioning in these faculties and any of the laboratories in RUSL lack waste treatment facilities. Hazardous medical waste materials are produced by the faculty of Medical & Allied sciences. The other laboratories are generating a high quantity of chemical waste. Most of the concentrated liquid waste is stored and diluted before discharging into the surrounding environment. The results showed that approximately 1200 kg and 750 l of hazardous solid waste and liquid waste materials are generated per year. Furthermore, about 95% of the solids and 36% of liquid waste generated are ignitable. Therefore, it is highly recommended to establish appropriate laboratory waste treatment facilities such as incinerators, chemical treatment techniques, and proper landfill dumping facilities in the university premises to prevent environmental pollution.

Keywords: Chemical treatment, Hazardous waste, Incineration, Waste management