

ABSTRACT

Solid waste management is becoming one of the most challenging tasks for developing countries like Bangladesh to ensure a sustainable environment. This management is an inevitable crucial issue in different institutions like education, healthcare, and others and as a pioneer educational institution, Bangladesh Army University of Science and Technology (BAUST) located in Saidpur, Bangladesh is not an exception. For the present research, the BAUST campus is selected as the study area. The quantification and factorization of solid waste on this campus were emphasized during the study which are the basis for proper management. In addition, some possible integrated solid waste management strategies were recommended. A total of 5 waste collection spots inside the campus were selected namely, academic building, admin block, Cafe BAUST, and two residential halls (one male and one female). Solid waste is categorized into 6 types that include Plastic waste, Paper waste, PET bottles, Glass, E-waste, and Kitchen waste. The data was collected for a month at a stretch and then analyzed. The average daily solid waste generation in the university campus was estimated to be 85.58 kg during the study period with kitchen waste representing the largest portion at 43.1%. Paper waste, Plastic waste, PET bottles, Glass, and E-waste were found 21%, 19.6%, 12.4%, 3.6%, and 0.3%, respectively which represents the least production of E-waste in the campus. Analyses show that differently dominated areas of the campus have different quantities and compositions of waste mainly due to significant variations of organic and inorganic components. Among 6 different types of solid waste, Plastic waste was found in higher quantity in Academic building and Admin block. In Cafe BAUST, the higher percentage was PET bottles. The production of Kitchen waste was higher in both residential hall which is obvious. Academic building and admin block produce 33.9% and 27.2% of plastic waste respectively, the Cafe BAUST produces 35.9% of PET bottles, and the male hall namely Shaheed Dr. Zikrul Haque Hall (SDZHH) and the female hall namely Bir Protik Taramon Bibi Hall (TBH) produce 54.8% and 43.9% of kitchen waste respectively. In accordance with the existing management practice of BAUST, solid waste from different locations is collected and transferred to the four main dustbins placed inside the campus and then transported to the fixed landfill area (located beside the Saidpur bus terminal and 1.8 km far from the campus) of 'Saidpur Pouroshava' using their vehicles. There is no fixed schedule for waste collection and transportation inside the campus resulting the accumulation of solid waste for a long time and bad impact

on the environment. Documented policies or records of the reuse or recycling of solid waste were not found. However, a certain amount of the paper waste was reused and sold. Recommendations were made to include source separation methods to ensure recycling and re-use of solid waste. Besides, proper training of the waste collectors, fixing a schedule, fixing dumping zones and waste recycling stations inside the campus, and overall written policies for waste management can guide to a sustainable environment on the campus.