ABSTRACT

Population growth in Dhaka is one of the highest among the Asian cities. This large population with increasing growth produces wastes, the bulk of which comes from household activities. Due to the absence of waste separation in the root level of waste collection system, a large amount of plastic, glass, metal, electronic devices and other hazardous materials find their way into the waste collected and ultimately goes to the landfill. During monsoon, waste in the landfill in contact with the percolating water gives up organic, inorganic soluble particulates producing leachate accumulating at the bottom of the landfill. Without a proper leachate collection and treatment system, the vicinity of the landfill remains in danger of some short-term and long-term effects. The Groundwater contamination of leachate is one of the long-term effects which occurs through percolation of leachate in the underlying soil of landfill over a persistent period of time. During percolation of leachate through soil, a portion of the toxic particulates is removed by the soil. Considering the above facts this study was conducted to see change in the parameters that ages of different year solid waste cause to the rainfall passing through it and also measuring the change of the leachate when further passed through sandy soil. A laboratory model was built to simulate the formation of leachate and its percolation through soil. Here two different samples of solid waste from Amin bazar landfill in Dhaka was collected, one was of 3 years and other was of 5 years age. Distilled water was passed through the solid waste to simulate the occurrence of rainfall. The passing effluent was then further passed through two samples of sandy soil. FM of Sylhet sand is 2.87 and FM of another soil sample is 1.75. The collected effluent before and after passing through sand was tested for finding out the changes in different water quality parameters. Analysis of the result its comparison with standard shows that sand media is adequate for the removal of TSS,

TDS, BOD_5, and COD and inadequate for the removal of the heavy metal. And between the two medium sandy soil samples of FM 1.75 has higher removal efficiency compared to soil sample with FM 2.87.