An Approach for Risk Index Assessment due to Direct Contact to the Municipal Solid Waste dumps

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Abstract

Due to rapid urbanization and growth in the population in India, the generation rate of municipal solid waste is increased and it leads to the problem of waste management. Waste is being disposed in open which leads to the various environmental problems. To overcome these problems, the dumpsites need to be close and remedial measure to be taken according to their contamination potential. Various methods are being used to assess the risk from these dumpsites. Hazard rating systems are most common because these are easy to use and require less data than other approaches.

This method assesses the risk by Direct Contact route and is based on Source – Pathway – Receptor linkage methodology. Basic parameters like area, height and composition of waste is added to the existing system HDM (Hazard Decision Model). This system is applied to the seven artificial dumpsites with varying characteristics. Sensitivity analysis of new system is performed to check the sensitivity of each parameter on the system. Clustering analysis of new and existing systems are compared direct contact route like ERP-HRS (Environmental Repair Problem Hazard Ranking System) and HDM. The direct contact risk index assessment is done for two dumpsites of Allahabad, India. New system shows better and justified results and this system can be used to assess the direct contact risk from the dumpsites.

Keywords: Direct Contact, Risk Assessment, Open Dumping, Municipal Solid Waste, Source – Pathway – Receptor.