

## Development of Integrated Solid Waste Management Plan for Industrial Estates of Pakistan

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**Abstract :** This paper aims to design an integrated solid waste management plan for industrial estates taking Sundar Industrial Estate as case model. The issue of solid waste management is on the rise in Pakistan especially in the industrial sector. In this regard, the concept of development and establishment of industrial estates is gaining popularity nowadays. Without proper solid waste management plan it is very difficult to manage day to day affairs of industrial estates. An industrial estate contains clusters of different types of industrial units. It is necessary to identify different types of solid waste streams from each industrial cluster within the estate. In this study, Sundar Industrial Estate was taken as a case model. Primary and secondary data collection, waste assessment, waste segregation and weighing and field surveys were essential elements of the study. Wastes from each industrial process were identified and quantified. Currently 130 industries are in production but after full colonization of industries this number would reach 385. Elaborated process flow diagrams were made to characterize the recyclable and non-recyclables waste. From the study it was calculated that about 12354.1 kg/captia/day of solid waste is being generated in Sundar Industrial Estate. After the full colonization of the industrial estate, the estimated quantity will be 4756328.5 kg/captia/day. Furthermore, solid waste generated from each industrial sector was estimated. Suggestions for collection and transportation are given. Environment friendly solid waste management practices are suggested. If an effective integrated waste management system is developed and implemented it will conserve resources, create jobs, reduce poverty, conserve natural resources, protect the environment, save collection, transportation and disposal costs and extend the life of disposal sites. A major outcome of this study is an integrated solid waste management plan for the Sundar Industrial Estate which requires immediate implementation.

**Keywords :** integrated solid waste management plan, industrial estates, Sundar Industrial Estate, Pakistan

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