

Chapter 6

Waste Management Under the Legal Framework in India

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ABSTRACT

India, the second biggest country in the world, has nearly 1.25 million people living in 29 states and seven union territories covering an area of 3,287,000 sq. km. India's economy grew at an impressive 8.2% in the first quarter of 2018-19. Traditionally, India has the habit of reuse and recycling the materials wherever possible. As the city agglomeration is increasing the waste generation is increasing. The number of towns/cities have increased from 5,161 in 2001 to 7,935 in 2011, whereas the number of metropolitan cities having million plus population has increased from 35 to 53 number as per 2011 census. It is projected that half of India's population will live in cities by 2050. Waste management in India has been experiencing a paradigm shift through the establishment of Swachh Bharat Mission in urban and rural India in 2014 and the revision and establishment of waste management rules in six types of wastes including transboundary movement in 2016. This study presents the overall waste management scenario and the legal framework in India.

INTRODUCTION

India, the second biggest populous country in the world has nearly 1.25 million people living in twenty-nine states and seven union territories covering an area of 3,287,000 sq. km. India's economy had an impressive 8.2% in the first quarter of financial year 2018-19 ending June 30, which was on the foundation of a strong core performance and a healthy base. Traditionally, Indians have the habit of reusing and recycling the materials wherever possible. This leads to the generation of lower amount of wastes per capita. The average solid waste generation in rural areas varies from 100 g to 300 g and in urban areas varies between 400 g and 900 g due to the urbanization and industrialization. The rate of waste generation is increasing at moderate rates in last few years because of higher GDP and the increase in purchasing capacity. The total amount of solid waste generated in India is nearly 62 million a year with an increase rate of 1.33% annually. The number of towns/cities have increased from 5161 in 2001 to

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7935 in 2011 whereas the number of metropolitan cities having million plus population has increased from 35 to 53 number as per 2011 census. Projection forecasts that half of India's population will live in cities by 2050. With the enhanced city agglomeration, the waste generation is expected to increase. This study will present the overall Waste Management scenario and the Legal Framework in India.

WASTE DEFINITIONS, POPULATION, GDP, ANNUAL WASTE GENERATION, DAILY/ANNUAL PER CAPITA WASTE GENERATION, COMPOSITION OF SOLID WASTE/MSW, WASTE GENERATION NATIONWIDE (URBAN VS RURAL)

Solid wastes have been classified in different regulated categories in India, namely, a) solid waste, b) hazardous waste, c) electronic waste, d) biomedical waste, e) construction and demolition waste (C&D), f) plastic wastes and g) lead acid batteries. The recently revised Solid Waste Management (SWM) Rules 2016 defines “solid waste” as the solid waste, which includes solid or semi-solid domestic waste, sanitary waste, institutional waste, commercial waste, catering and market waste and other non-residential wastes, silt collected from the surface drains, street sweepings, agriculture and dairy waste, horticulture waste, treated bio-medical waste excluding industrial waste, bio-medical waste, e-waste, battery waste and radio-active waste generated in the area under the local authorities and other entities. The general waste flow methods in India starts from segregated storage at source and/or storage mixed at source – collection - transportation followed by disposal to recycling & treatment facilities and/or dumping to specified open ground or to sanitary landfill sites. Government of India has a regulation for the underground isolation lining in the landfill for avoiding leachate emissions and regular application of soil coverage over disposed waste.

SWM rules 2016 have given directions for storing, collection, transportation, technologies to be adopted and also the final disposal. Three bin system has been introduced for the storing of wastes at sources in segregated manner for biodegradable, dry, non-biodegradable and domestic hazardous wastes. In the same way, the collection and transportation are carried out for separate types of wastes. Although the SWM Rules 2016 requires the separation of household wastes in three bins, there are many Urban Local Bodies (ULBs) in the country where mixed wastes are collected, the intervention of informal sectors of waste pickers are observed to separate and collect the portion of valuable dry wastes for selling it to the recyclers for their livelihood earning. The biodegradable wastes are treated in facilities of composting, bio-methanation, and any other energy recovery processes. In composting the informal sector has a significant contribution as they remove the dry portion of the waste in case of mixed wastes. Dry wastes go for different types of recycling facilities including energy recovery processes, namely, waste to energy plants of incineration types, small pyrolysis plants, RDF (Refuse Derived Fuel) plants, metal processing plants, plastic recycling plants, paper plants, cement plants and many others. In India nearly 57% of solid waste is still destined to landfill and open dumping. Initiatives have been taken to reduce the disposal to landfill. The SWM Rules 2016 encourages the implementation of different treatment technologies of waste and disposal for only less than 15% of wastes to sanitary landfill. The implementation of this policy is in the process. At present more than 4,237 cities are trying to practice the same as per the survey report of 2019. The mixing of C&D wastes in the waste streams was problem for

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