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**Review Paper**

Journey of Waste Management Regulations in India: A historical account

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ABSTRACT

One of the measures to address the huge generation of waste in India is to introduce more stringent regulations. With rapid change in technology and the lifestyle of the masses, not only the volume but the characteristics of wastes have also been altered. The issues pertaining to waste management in India has not been comprehensively addressed and implementation of these regulations is inadequate. The country needs a more systematic regulatory framework that integrates the need to reduce and prevent waste generation. Although the rules and regulations governing the varied kinds of waste like electronic, plastic, agricultural, biomedical, etc. are in place but still the problem remains as such and the improper solid waste management continues to take a toll on the health of the planet and humans. Against this backdrop, the present paper aims to provide an indication related to the rules and regulations governing the waste management in the country along with analyzing the past court interventions. A critical analysis of the current guidelines, policies and rules has been made in the paper so as to charter the future course of action in addressing waste management through legal interventions. The current study is based on the secondary research on reports, publications, policy documents, etc. to have an in-depth knowledge on the waste management regulations. The study infers that India is pioneer in framing legislation on Waste Management but the laxity in implementation is hindrance in addressing the concerns of improper waste disposal.

Introduction

It is accepted that knowledge of past events is crucial in understanding policy and development plans.⁵ The historical account on waste management speaks volumes about the waste management rules, policies and programmes in the country. Way back to 1970s and 1980s, the management or the addressal of the matters related to the generation and minimization of waste products has been in place though not systematically presented.

India has “reuse” and “reduce” in its cultural and customary habits¹⁸. With the changing pace of development and increasing consumerism, the quantity of waste materials being discarded has grown manifold. As the world population has increased, urbanized and has become more affluent, waste generation has risen several times.^{6, 9} India struggles more with the waste generation because of its population size and increase in the rate of urbanization^{7, 12, 19}. According to MOEF&CC, 2016 Report, by the year 2040, India will generate around 135 million tonnes as compared to 62 million tonnes as of 2016. According to What a Waste 2.0: (2018), by 2050, it is expected that the world will produce 3.40 billion tons of waste every year. To make the matters worse, the pandemic period witnessed substantial rise in the plastic and packaging waste.

Effective waste disposal and management depends upon the systematic quantification and measurement of waste.¹⁰ Also, when we look at these measures, it is found that they have largely focused on treatment and material recovery and energy generation. The policies have mostly been focused on ‘discharge end control’ instead of ‘source end control’ approach.⁷. The underlying reasons of managing the waste have largely been focusing on human health, environment conservation, climate change and resource recovery.⁸ The role played by the legal and regulatory bodies in managing the waste cannot be ignored. To the top of it, the poor implementation of rules also creates a burden. The rules are neither followed by the

waste generators and nor strictly monitored by the authorities. It is obvious that without adequate and stringent regulatory features, the waste management measures do not yield the desirable results. The lessons from the other countries like Japan, Germany, Netherlands, Singapore reveals that without strict enforcement of waste management rules and penalty provisions, it is very challenging to change the behavior of the people.

In order to capture extensive features, a thorough investigation on waste management regulations in the country which links legislation, economics, environment with policy options and past experiences is needed. The paper presents a collective and qualitative analysis in terms of legal measures for charting future course of action.

The paper strongly emphasizes that the rules and regulations play a crucial part in bringing down the adverse consequences and dangers associated with unscientific waste disposal and management. In this regard, the journey of rules and regulations framed for effective waste management has been presented chronologically. The information regarding the same has been collected from the secondary sources particularly the reports, articles and research papers.

Environmental legislation on “Waste” in India

The Constitution of India provides framework for environment protection and conservation. Article 243 (W) of the constitution provides power and responsibility to the municipalities to manage and safely dispose waste, protect the nature and provide good health, education and quality of life to the people.

In India, the State Government is entrusted with the responsibility to make laws and implement them related to the issues such as “Health, Sanitation and Hygiene”. (Article 243W, 12th Schedule of the Constitution of India). Likewise, Item 6, List II, Schedule VII, Constitution of India also empowers the local government to take measures for public health. The directive principles of state policy and various regulations explain the Right to clean and healthy environment and the corresponding duties.

The National Environment Policy, 2006 also stresses on recycling, treatment and proper disposal. It highlights that the polluter is responsible for the pollution and must bear the expenses incurred in removal of pollutants. There are Criminal Laws also which deal with the Waste Management. The Indian Penal Code of the year 1860 under Chapter 14 throws light on the various dimensions of waste management.

Environmental legislation in India is quite comprehensive and illustrative. The provisions under various rules and sections of the Acts call for coordination between multiple agencies and departments. Due to complexity and ambiguity, the rules governing the waste management are not strictly followed in the country and it could become a foremost responsibility of the future. (Down to Earth, 2019). Most of the rules are difficult to implement because of the size and federal structure of India. For example, the National Green Tribunal and Supreme Court have put restriction on the open burning of waste. The urban local bodies are entrusted with the responsibility to make decisions and implement the policies. The Municipal authorities are responsible for implementing the framed rules, development of appropriate technological facilities and suitable infrastructure for proper waste disposal.¹⁹

Due to unfitting direction and lack of coordination between regulatory bodies, the waste disposal procedures get affected. The other legal limitations include inadequate laws, inappropriate regulations, absence of criteria and scant execution of the existing laws, political will and intervention and soft punishments.

The Timeline of regulations

‘Waste’, ‘Solid Waste’ was not a ‘problem’ once when everything was used till the end and nature itself took care of the remaining materials which were abandoned. For example, during 1940s and early 1950s, when Hooker Electrochemical Company dumped thousands of tons of chemical sludge into Love Canal, it was flawlessly lawful. Initially, the agenda of waste management revolved around health and sanitation as communicable diseases were linked to unhygienic conditions. With the beginning of Industrial Era after 1970s, the concerns around pollution, release of toxic chemicals and waste generation grew.

India was the pioneer country in assimilating environmental concerns into its law and policy making procedures as early as in 1970s.²⁵ The Five year plans also charted out the mechanism, funding and means of dealing with the waste. The Third Five Year Plan (1961-1966) mentioned about the composting Municipal Waste Management in urban settlement. As per the 4th Five year Plan of the Planning Commission (1969-1974), the financial assistance was provided to the state governments by the Government of India for setting up of composting plants.² A high powered body was formed in 1975 dealing with the urban waste which highlighted the importance of segregation and disposal of waste.

The Water Act, has the endowment of tax collection on water that is used in sanitary landfill, composting and anaerobic digesters. Till the beginning of 1980s, waste management was treated in isolation just like any other environmental problems. The relation of solid waste dumping with air and water pollution was mostly ignored. Landfills were considered to be the most sought after method along with river dumping. With land getting scarce, in the times to come, it became a challenge to continue following the same practice.

The Bhopal Gas Tragedy, 1984 highlighted the concerns about the hazardous chemicals and toxicants and human safety. After the Bhopal Gas Tragedy incident, the Ministry of Environment, Forest and Climate Change (MOEF&CC) legislated, the Environment (Protection) Act 1986 for environmental pollution and waste management. The Central government is conferred with the powers to regulate all forms of waste. Under EPA, 1986, the Hazardous waste (management and handling) rules, 1989 and Bio-medical waste handling rules, 1998 were framed to address environmental pollution and safeguard public health. However the respective duties and specific roles pertaining to waste management like collection and transportation of waste were lacking in these rules. The world population grew exponentially during 1990s which led to improvement in the living standards, wealth accumulation, increased life expectancies and shorter working hours. Then at the same time, after the Surat plague happening, a high level committee known as the Bajaj Committee was founded in 1995 which gave references and suggestions for effective solid waste management in urban areas. These recommendations comprised initiatives like integrating and inclusion of informal waste workers and waste collectors, encouraging door-to-door waste collection, segregation, operationalization of recovery centers; recycling, composting and other treatment of waste, and levying user fees for waste collection. National Waste Mgmt. council was set up in 1990 to propose solutions for waste management.

By the end of 1990s, in India, difficulties due to landfills on nearby surroundings were clearly obvious. Waste to energy treatment plants were encouraged during this time. The Supreme Court of India constituted a body to observe the status of waste management in cities. The body identified the loopholes in the prevalent waste management practices in the country and present edits Report in 1999 on Solid Waste Management practices followed in some cities.

The year 2000 and thereafter

After the year 2000, the climate change issues linked to release of methane at landfills grabbed attention. The enormous waste generation at one hand contributed to climate change and on the other proposed measures for poverty eradication, wealth creation and entrepreneurship. The “Municipal Solid Waste (Management and Handling) Rule” was notified in September 2000. The objective of the rule was to develop scientific techniques for the safe dumping of municipal waste. During the same period in 2000, The Ministry of Urban Development came out with a Guidance Manual on Municipal Waste Management. The manual laid importance on following hierarchy of waste management like waste minimization, recycling, waste processing, waste transformation and disposal. The irony was that the rules and manual approached the waste management in different ways. The rules never mentioned about the hierarchy.

The period after 2000, resulted in much tumult about how to best clean up, with small regulatory acts. Till now, waste management was considered as a linear approach from collection to disposal leading to severe health and environmental hazards. One after the other, the bodies were formed but no implementation. Due to lack of legislative backing and institutional support, the rules never got properly implemented.

According to Municipal Solid Waste Rules, 2000 the municipal bodies in the country were responsible to dispose the waste in their areas. The implementation of these rules and the creation of necessary infrastructure was the responsibility of municipal authorities. The rules explained the means for the collection, transportation of waste. The only drawback was that the responsibility was not accorded on the waste generator and other stakeholders. The concerns of sanitary waste, construction waste and the role of different ministries was also not mentioned clearly.

The Batteries (Management and Handling) Rules were reported in 2001 to dispose lead acid batteries in an eco-friendly manner. The rules were applicable to the manufacturers, bulk consumers, importers and dealers. The Hazardous Waste Management Rules were amended in 2002 and 2003. The duties of the occupier and facility operators were identified and it was clearly specified that the import/export of hazardous material is permitted only as a raw material. Thereafter in 2008, The Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 was enacted for the safe handling and movement of the hazardous substances. In Delhi also, PIL decision led to the major decisions on disposing waste in a scientific manner.³

After the year 2010

Increasing tipping fees, lack of landfills, business opportunities in the sector, environmental concerns, health of the people, all these issues rose after 2010 and called for newer means for managing the specific wastes.

The growing hazards of plastic and electronic waste urged the Ministry to frame rules. In the year 2011, the government notified the Plastic Waste (Management and Handling) Rules, in place of earlier rule called Recycled Plastics Manufacture and Usage Rules, 1999. Likewise, the E- Waste Rules 2011 have been notified to ensure safe and environment friendly disposal of electronic items and products. According to the rules, bulk consumers such as enterprises and government are responsible for recycling of the electronic waste produced by them.

After 16 years, the Municipal Solid Waste (Management and Handling) Rules were revised and renamed as Solid Waste Management Rules, 2016. The revised rules are now applicable beyond municipal areas and also include urban clusters, census towns, and special economic zones, places of pilgrimages, areas under Indian railways, airports and airbases. Several changes have been introduced and the generators of waste and the role of stakeholders have been highlighted.

The rules emphasize segregation at source, provision of bins to street vendors, and segregation of waste into biodegradable, recyclable and domestic hazardous waste. The disposal of critical waste such as sanitary waste must be carried out carefully and the manufacturers and brand owners of disposal items and sanitary products must provide wrappers and pouches for their safe disposal. The construction and demolition waste has been dealt separately for the first time. The Biomedical waste management is considered as a social responsibility along with the legal necessity¹⁶

SWM rules 2016 have given proper directions for storage, collection and disposal of waste by adopting technology and innovative solutions. Three bin system for the segregated collection of biodegradable, dry recyclable and hazardous waste has been introduced.²³

The Government notified the Plastic Waste Management Rules, 2016, in place of Plastic Waste (Management and Handling) Rules, 2011. The rules which were applicable in the municipal areas extended to villages due to increase in the generation of plastic waste in these areas. Further the Plastic Waste Management (Amendment) Rules came into force in 2018.

According to The E- Waste (Management and Handling) Rules, 2016 manufacturers, consumers and dealers, of electronic goods have to abide by these rules. The rules need to be made more stringent for applicability and output in terms of implementation.

In spite of the provision of these many rules, the 2016 rules on waste management have not been able to attract the needed attention and implementation. Encouragement has been given to centralized means such as waste to energy treatment plants. The exclusion of informal sector still remains the same. The successful stories indicate that decentralized systems offer better solutions and can be considered looking into the diversity of the country. Capacity building, training and awareness needs to be built on issues such as segregation at source. It is also true that almost after 5 years of the notification of the rules; the waste management is still in sad state. The Rules need to give more importance to people's participation in waste management from segregation to final disposal. There is a need to work at the grass-root level to address the issues and concerns.

A number of policies have been in place for addressing solid waste management concerns. The National Environmental Policy (2006) in the early years expressed the importance of waste management rules/regulations in the country. The National Urban Sanitation Policy of (2008) is a landmark policy in the direction of sanitation and public health. The National Action Plan of Climate Change (2009) illustrates the role of proper waste management in mitigating the effects of climate change. The Government of India came out with the ambitious Clean India Mission in 2014 which had targeted providing hundred percent scientific management of solid waste management and Open Defecation Free (ODF) status by 2019.

Implementation of the Rules

India is a country where regulatory frameworks are framed with utmost perfection but the lack of enforcement has been the key issue along with lack of accountability and transparency in regulatory agencies. It is highlighted that sharing of the information related to waste generation can help in the change in the behavior of the people. Non-compliance of the waste management rules happens also when the residents, industrialists and business managers are ill informed about the ideal practices. There is a lack of municipal bye laws, penalty system and so indirectly littering and un-segregation is promoted. Countries like Singapore, US, Germany are clean not because of education only but also because of stricter rules and regulations.

Working on building competency and establishing coordination between various regulatory bodies will go a long way in improving the ground level conditions. There is also a need for stricter enforcement of the rules. Consider the case of electronic waste, according to Electronic Waste (Management and Handling) Rules, 2016 amended in 2018, it is the responsibility of the company to collect the wastes and take measure to ensure that the wastes have been transferred to the recycling centers safely, but due to the absence of any proper monitoring system it cannot be guaranteed that such transportation of wastes is done safely and even the annual reports filed by most of the producers according to E-waste (Management) Amendment Rules, 2018.

Way Ahead

Although, traditionally, economic valuation dominated policy decision making, in present times, the quality of the environment, risk analysis and assessment, social harmony and abiding by the legislation is more important¹ Unprecedented growth coupled with industrialization has led to enormous amount of waste generation in the country. Lack of adequate training, inefficient resources and inadequate funds are the reasons behind improper handling of wastes. Studies from the National Green Tribunal, India's apex environmental authority point out that 92% of urban local bodies go for open dumping of waste. In order to address these issues, we need a rigorous mechanism to deal with the diverse nature of the waste that we generate. In India, the apex body dealing with all the environmental issues including the waste management is the Ministry of Environment, Forest and Climate Change (MoEF&CC). Time and again rules relating to waste management have been framed, amended and notified by this body. The State Pollution Control Boards (SPCB) set up across the states is also entrusted to deal with the issues in the respective states. However, the issue lies mostly with the ineffective implementation of these rules.

Therefore, managing waste in a sustainable manner is one of the urgent issues which require global support¹⁷ It needs to set new priorities and goals. For example, consider the food wastage. There has been considerable increase in the amount of food waste generated particularly during pandemic.²⁶ With the dreaded consequences of climate change looming over, food wastage during production and transportation needs serious measures along with tackling food wastage at home. Similarly packaging and sanitary waste are bound to increase in volumes because of changing lifestyles and access to resources in the times to come and we may need separate rules governing them.

Ample job opportunities are there in waste management sector if these rules are followed properly. The key issues need human interventions that can effectively carry out waste collection, treatment and disposal. According to a study, if the Municipal Solid Waste Management Rules, 2016 are implemented properly, more than 12,000 jobs can be created in North East region of India. If extended to all villages, nearly 40,000 jobs related to door-to-door collection, composting and recycling value chain can be created. This will help improve the wellbeing of nearly 50 million people in the region. (Down to Earth, 2020).

Waste management is critical to sustainable development and the cost of inaction is more than the cost of setting suitable plans. Governments cannot avoid this responsibility and expect individuals and communities alone to hold this. Hence along with policy and enforcement, the government needs to allocate adequate funds for waste management interventions.

Nations all over the world are struggling to tackle the emerging waste generation problem at different levels irrespective of their position. Country-specific legislations must be thoroughly examined before assessing their impact and making a worldwide response¹⁹

There are operational and financial issues and technological issues which demand equal attention. Policy and legal arrangements must be strengthened and private sector must be allowed to play its part, recognition of informal sector, identifying the role of various agencies

Conclusion

The regulations in waste management field are lacking in implementation and intersect each other. We need strong monitoring bodies which can track the implementation of the various rules which are amended from time to time.

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