

Plastic waste management and current scenario in India: A Review

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Abstract

along with the population of "1.324 billion", India has become the 2nd biggest country in the globe, after China, that is becoming important for industrialization and urban growth. Because India has now introduced as growing market, persons from the towns have begun to migrate to towns, which produce the big quantity of waste material daily. from one to four percent of all the solid wastes are produced by plastic residues, the majority of which are made by household, manufacturing, grocery bags and plastic bottles of water. In addition, in some Indian states there is a desert region that produces pollution from the plastic things which seaside recreation. the material which is completely wasted, is gathered from outside villagers and cities inappropriately creating unpleasant as well as disorganized situations who mostly affect the people's health who are living surrounding them, but also lead to ruin management issues, leads to massive environmental impacts which contribute to the groundwater pollution. The analysis focuses on the improvement of minimizing the plastic waste and indeed the present crisis in our nation.

Key words: India, environmental, health, Plastic, waste, management, etc.

Introduction

The word plastic contains materials consisting of different constituents like "carbon, hydrogen, oxygen, nitrogen and chlorine". " Macromolecules are plastics" that are polymerized and that can be moulded by applying a strategic element of pressure as well as temperature or indeed any impose. It is just one of those new chemicals that present pollution disasters. Polyethylene is mainly employed in plastic materials manufacture the polyvinyl chloride and polystyrene. Plastics has transcended every aspect of human existence like "packaging, domestic long-term consumer, electronic components, car, agriculture, buildings, water, health care, transport, medicine and defence". Today, owing to its lower cost input materials percentage, use of such composite material has enhanced so that enhancement can be accomplished during production. The packaged food company is the biggest sector where plastics are widely used, and the

development of the manufacturing sector is growing because then new jobs in many nations also have developed. For domestic use, the majority of the waste is generated from domestic use, as well as from food wastes, bags and provisional "plastic storage utensils". Review of literature

(Jyothsna and Chakradhar 2020) studied "*Current Scenario of Plastic Waste Management in India: Way Forward in Turning Vision to Reality*" As part of the 2018 World Environment Day, India is committed to combating plastic pollution. "The theme of this paper is to understand the current Plastic Waste Management (PWM) scenario in India, especially in the sense of achieving the 2030" objectives of sustainable development.

(2019) studied "*A Scenario of Plastic Waste Management in India: A Review*" and observed that In our everyday life, plastic and its products play an important role and continue to claim its existence even today. A so-called wonder commodity of the 20th century, which was created globally at an enormous level as a result. 400 million tonnes of single-use plastic (SUP) waste produced globally every year is recorded by the United Nations Environment Programme. The wide range of appliances includes household and industrial goods, packaging films, fluids, shopping and garbage bags, containers, clothes, toys, wrapping and construction materials.

(Bhattacharya et al. 2018) studied "*CHALLENGES AND OPPORTUNITIES Plastic Waste Management in India*" and found that Because of its usage in a extensive range of industries, such as "automotive, manufacturing, electronics, healthcare, and textiles, the plastic industry is one of the fastest growing markets". Various government initiatives, such as Make in India, Ability India, Digital India, and the Swachh Bharat Abhiyan, will further boost this growth. It indicates the use of plastic in the different industries.

(Banerjee, Srivastava, and Hung 2014) studied "*Plastics waste management in India: An integrated solid waste management approach*" and found that India has experienced significant growth in both plastic manufacture as well as consumption. Without adequate "waste collection and segregation processes", waste management has become a challenging activity, especially for discarded plastic used for packaging. This article provides a summary of the reasonable alternatives for rehabilitation of plastic waste resources, considering waste minimization, to evaluate the best conceivable outcome in the Context of India.

(Joshi and Ahmed 2016) studied "*Status and challenges of municipal solid waste management in India: A review*" and found that, an effort is made to evaluate the major parameters of

MSWM. The following section inspires "the abysmal state" of the "municipal solid waste management (MSWM) in urban India and challenges". Population growth results in better "municipal solid waste (MSW) and unscientific MSW management degrades the urban environment and creates health risks". In this study, the categorization, availability and treatments of MSW generation as practised in India have been thoroughly analysed. position of the municipal solid waste, the ongoing trend of combining biodegradable (wet) waste at the source of generation with dry waste, and the increasing volume of plastic in the waste. The new scheme focuses on the storage and transport of mainly mixed, unsegregated waste.

(Ahluwalia and Patel 2018) studied "*Solid Waste Management in India An Assessment of Resource Recovery and Environmental Impact*" and found that "The environmental and financial sustainability" of the management of solid excess in the towns of India. It provides an evaluation of the increasingly increasing amount of "municipal solid waste", Evolution of "municipal solid waste composition", continuing phenomenon of combination of waste material (wet) with dry biowaste and boosting plastic quantity in landfills. The current initiative is mainly concerned with storing and transportation of mixed, non-separated waste.

(Rajput, Prasad, and A.K. 2009) studied "*Scenario of solid waste management in present Indian context*" and found that Solid waste can be described as the processing of unwanted materials that are wasted after they're used. As some of them can be harmful for human health, Social system for its benefit could indeed explicitly reuse them. Covering different plants, fruits and cooked materials makes it possible for different classes of "microbial flora, which may be pathogens", to proliferate. Commencing, with the development of civilization, The human species was manufacturing waste, cartilage as well as other animals those who killed to make their trolleys or cut trees, the waste created becomes a more complex nature.

Types of plastics

- Plastics may be categorised as composite material rather than thermoplastic synthetic bottles according to their characteristics.
- "Thermoplastic materials", are the materials which can be remoulded w. whereas, thermosetting plastic , can't be removed by applying thermal energy to the substance.
- 80percent are Thermoplastics, and 20percent are Thermoplastics from total plastics uses.

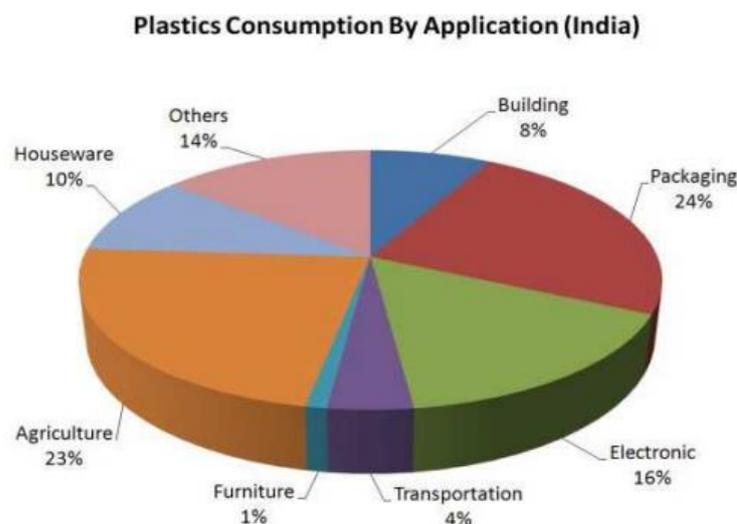
- Microplastics aren't really a particular form of plastic, however any category of polyethylene particle less than five mm long.
- Plastics which are environmentally friendly can be rotted into "water, carbon dioxide and biomass through the actions of living organisms, normally microbes".

Consumption of plastic in India

- "Due to its low cost, versatility, durability and high strength to weight ratio", plastic materials are becoming an indispensable and significant market in the world.
- The plastics industries have increased “at a CAGR of 10 % in volume terms from 8.3 MMTPA in FY10 to 13.4 MMTPA in FY15”
- Expected to grow at a CAGR of approximately 10.5 % from FY15 to FY20 to reach 22 MMTPA due to its extensive application.

(Source: Industry reports, TATA strategic analysis)

- In India the Govt. initiative such as “Make In India”, Skill In India” and “Digital India” have increased the growth of plastic products.



Effect on human health due to plastic waste

There's always expanding relevant data of the literature on possible risks in order to oppose the negative effects of polycarbonate on the global species. Plastic directly influences the lives of people through substances in the procedure of plastic production or through the source added of the managing and use of plastics. A vary of substances highly toxic throughout the production of plastics. So if revealed to plastics recycling chemical products for the longer period of time, the plastic waste has a major negative effect on the living organism. When garbage is mixed with several other "household waste, harmful liquids and gases" create the issue for the surrounding area. So if waste is merged with several other household waste which are specially solid. Agricultural biodiversity is an interconnected indicator of the stimulation of a living thing to suspended solids from a variety of sources. The whole approach has demonstrated the presence in the "human body of chemicals used in plastics, governing metabolism balance, constant exposure and the removal of the compounds."

Sr. No.	Year	Name of the committee /commission	Chairman
1.	1949-51	Local Finance Enquiry Committee	P.K. Wattal
2.	1953-54	Taxation Enquiry Commission	John Mathai
3.	1963-65	Committee on the Training of Municipal Employees	Nur-Ud-din Ahmed
4.	1963-66	Rural-Urban Relationship Committee	A.P. Jain
5.	1963	Committee of Ministers on Augmentation of Financial Resources of Urban Local Bodies	Rafiq Zakaria
6.	1965-68	Committee On Service Conditions of Municipal Employees	-
7.	1974	Committee on Budgetary Reform in Municipal Administration	GirijapatiMukharji
8.	1982	Study Group on Constitution, Powers and Laws of Urban Local Bodies and Municipal Corporations	K.N. Sahaya

Environmental issues on disposal of plastic waste

- Beaches and oceans of plastic pollution.
- The countryside is littered in plastic bags.
- Kill the animals with poly bags.
- Wide varieties of pollutants are unveiled during product production.

- Unjustified dumping of solid waste on earth makes the earth infertile because of its unstoppable nature.
- "Toxic emissions such as carbon monoxide, chlorine, hydrochloric acid, dioxins, furans, amines, nitrides, styrene, benzene, 1, 3- butadiene, CCl₄, and Acetaldehyde are produced through the burning of plastics."

Effect of plastic waste on the environment

Today, plastic production as well as its application have gone up significantly that has had environmental effects due to the absorption of plastic pollution. Scientific knowledge for Environmental Policy 2011 stated that the actual quantity of waste manufacturing stays the same as well as continually increases 'can be easy to degrade and restore plastic waste.' "Plastic pollution" is caused by polycarbonate collected from various uses in an environmentally damaging area and harming ecosystems. It leads to environmental pollution or tends to "cause water, land and air pollution because of the emission of chemicals present in the plastic". In his report on plastic pollution "Earth eclipse mentioned that the plastics are degraded for about a thousand years.' On the ground, wind can "move plastic from one place to another in the environment, because the plant, traffic lights, clusters and other structures are stuck in the trees." In our country, to reduce the plastic waste material is a very challenging issue. Some innovative ideas have been emerged for minimizing the negative impact on the ecosystem.

Challenges of plastic waste management

India is the developing country and an well emerged economy in the context of plastic market also, but along with all these positive terms, there is a challenging issue that our country faces, that is of the increasing the plastic waste material and that also increases the problem of all over the globe and also harms the ecosystems. Those urban areas have more inhabitants because of the increased possibilities that also significantly raise the use of plastics and therefore no plastic resources. The Indian administration has enforced rules and regulations to tackle these issues which largely cover the prohibition and the use of transparent plastic for the very easy process of recycling. The efficiency and cost for plastic reduction and composting are not enough to handle wastage of plastic generated daily in the order of "15,000 tonnes."

Conclusion

India, as a developing nation, throughout each stage of the nation's development phase, economic construction plays a key role. The good utilization of plastic pollution in the country

has been one of the major components that leads towards its "sustainable development". The whole study found, the prime global variables that impact the rise in waste generation in the industrial development, ultimately also increasing the environmental degradation from plastics, are the reliability and financial system. Couple of states in India are creating more controllable plastic pollution. In order to overcome increased plastic pollution generations as well as keep improving the health as well as environmental quality of society, effective interventions are thus needed. There was good information to demonstrate this enormous waste production and the production of waste in every state in India. Few of these methods include the application of plastic pollution for building materials and flexible paving. Besides that, the fuel oil solvent which are used in domestic as well as diesel engines is provided by the "pyrolysis and shredding process". More study will also contribute to even more plastic waste management solutions.

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