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# **AN ANALYTICAL RESEARCH PAPER ON SOLID WASTE MANAGEMENT IN RANCHI, JHARKHAND**

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## **ABSTRACT**

The paper is all about the waste management conditions in the city of Ranchi, it includes the basic definition of what is a waste management and its concepts, general awareness of what should and may a person know about the handling of waste management. What is sustainable and unsustainable waste management, various strategies are jot down with various primary and secondary data's? The present status of waste management in India, the reasons for the mess created and what are the different laws that are governed over the environment. A survey was conducted in Ranchi in its very own dumping yard "JHIRI". It is an analysis of various measures taken on handling the wastes of the city.

**Keywords** - *Waste, Sustainable, Littering, Hazardous, E-Waste, The Batteries, Environment, MTS*

## **WHAT IS WASTE MANAGEMENT**

It is the handling and removing of waste materials, with certain processes that have collection, transportation, processing, recycling, and in last the end disposing of. It is very vital to do proper waste management to safeguard the environment and make it a healthy one. There are a few disposal methods like Recycling, Incineration, Composting, Sanitary landfill and Biological reprocessing.<sup>1</sup>

Many concepts are there for Waste Management –

1. The Waste hierarchy – It refers to the 3R's i.e. Reduce, Reuse and recycle.
2. Second is Extended producer liability – It can be referred to the accountability of the producer to complete the life cycle of products which is manufactured.
3. Polluter Pays Principle- The polluter who does the harm pays for it and the cost of reversing the ecological damage.

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<sup>1</sup> <http://www.businessdictionary.com/definition/waste-management.html>

### **Awareness-**

One more term is educating the people about waste management which can be really necessary these days as the environmental situation is not that good and is declining in its state day by day and further steps are necessary to be taken, one among them being spreading awareness. It is very critical to the perseverance of global health and security of humankind. A number of organizations are working towards the welfare of society. And a variety of supermarkets these modern periods of time are using the recycling process by introducing Reversing vending machines. Public awareness is very crucial to successful waste management. <sup>2</sup>

### **Sustainable Waste Management-**

It plays a vital role in reducing the amount of natural resources consumed, and the materials that are taken from the environment must be reused as many times as possible and the waste that is created can be kept to a minimum. <sup>3</sup>

### **Strategy development activities-**

1. Waste to energy technologies
2. Avoidance of marine litter
3. Electronic waste

### **Unsustainable waste management-**

Landfills are a cause of this. Landfills are large holes carved into the bottom of the ground that is lined with clay and plastic to carry waste. This affects the environment into a bad cause and does a lot of harm. Landfills don't just release gases they release liquids as well that is leachate the most potent of all which can contaminate underground water sources. <sup>4</sup>

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<sup>2</sup> <https://www.biologyonline.com/dictionary/waste-management>

<sup>3</sup> <https://www.dumpsters.com/blog/sustainable-waste-management-solutions>

<sup>4</sup> <https://www.hazardouswasteexperts.com/landfills-an-unsustainable-form-of-waste-management/>

## **PRESENT STATUS OF WASTE MANAGEMENT IN INDIA-**

### **Reasons –**

1. Domestic wastes and trade wastes are thrown on streets.
2. Construction waste is left unattended.
3. The Biomedical wastes are completely disposed of into the municipal waste stream.

The segregation of recyclable waste isn't done properly at the source. The design and site of municipal waste storage depots inappropriate this results in littering of garbage. The Per capita waste generation is increasing day by day 1.3% per annum or annual records. There is an increase of 5% in waste generation annually. India produces 42.0 million tons of solid waste annually at the present time. <sup>5</sup>

### **Reasons for improper management of waste-**

- Due to Improper planning of waste management while planning the townships.
- Lack of public awareness.
- Lack of trained manpower and technologies.
- Outdated management information systems.
- There were no power plants in some cities for the management of wastes.
- Less expertise and exposure in the city.

### **Approaches to waste management-**

1. Material recycling.
2. Waste transformation.
3. Sanitary landfilling.
4. Long term sustainability.
5. Eco friendly treatment should be done.

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<sup>5</sup> <https://civildigital.com/present-status-waste-management-india-recommendations/#:~:text=India%20produces%2042.0%20million%20tons,90%25%20of%20solid%20waste%20generated.>

### **The Laws Related to Waste Management in India-**

- The Environmental Protection Act,1986
- The Hazardous wastes (Management, Handling and Tran boundary movement) rules, 2008
- The plastic waste(Management and Handling) rules,2011
- Bio medical waste(Management and Handling) rules,1998
- The E-waste(Management and Handling) rules,2011
- The Batteries(Management and Handling) rules,2001
- Polluter Pays Principle

### **About Precautionary Principle**

It is also referred to because the precautionary approach, justifies the utilization of cost-effective measures to stop environmental degradation even within the absence of full scientific certainty. This principle has obvious applications to various sorts of environmental pollution.

German National Law, 1976 which states ‘environmental policy is not fully accomplished by warding off or avoiding imminent hazards and therefore the elimination of injury or damage which has occurred’. It requires furthermore that natural resources are protected.<sup>6</sup>

### **A SURVEY IN JHIRI DUMPING YARD (RANCHI)**

To justify we made a visit to the dumping yard named Jhiri in Ranchi

1. A total of 400 to 450 tonnes of solid waste is collected and dumped there from all over the city in a day. These include Biomedical waste, household wastes, industrial wastes and all kinds of solid wastes.
2. These wastes are brought over using tractors, dumpers, jeep and mega from 7 MTS stations in Ranchi.

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<sup>6</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1240435/>

3. All these MTS stations do a job of collecting or gathering solid wastes from 53 wards and it also separates medical wastes.

According to the information's given by one among officials of dumping yard, we need to know that-

Harmu-30 tonnes

Morabadi-22 tonnes

Khelgaon-15 tonnes

Kantatoli-20 tonnes

NBK-50 tonnes (Naga Baba Khatal)

Tarwana-15 tonnes

Madukam-15 tonnes

All the Waste which is collected from all the 7 MTS stations which don't include medical waste.

SL.NO	Questions	R1	R2
1	Is waste collected daily	yes	yes
2	Is solid waste separated from all other wastes	no	no
3	Is medical waste supported from solid waste	yes	yes
4	Is garbage processed	no	no
5	Are there any negative impacts on environment	yes	yes
6	Does it affect the health of workers and residents	yes	yes
7	Is there any waste treatment plant	no	no
8	Any precautionary measures taken	no	no
9	Are records maintained of collection of solid waste daily	yes	yes
10	Is government planning to set up a treatment plant	yes	yes

Further we got to know from the respondents about the

**Negative impacts-**

- Decrease in life expectancy of workers.
- Effects pregnant women.
- Health issues – breathing and skin related problems.
- No farming on the land- infertile land.
- Rainy season problems.
- Formation of methane gases which causes global warming.
- The Inefficient waste control is actually very bad for well being.
- The Overflowing of waste bins is actually an ideal breeding ground for bacteria and insects.
- Garbage contaminates surface water which affects the ecosystem.
- Gives rise to disease-carrying pests.

**Necessary positives –**

- Setup of treatment plants for recycling.
- Proper waste disposal.
- Making of proper roads.
- Providing safety equipment for the workers-masks, sanitizers, gloves and boots.

**List of questions –**

1. Is waste collected daily?
2. Is the solid waste is separated from all other wastes?
3. Is medical waste separated from solid waste?
4. Is garbage processed?
5. Are there any negative impacts on the environment?
6. Does it affect the health of workers and residents?
7. Is there any waste treatment plant?

8. Any precautionary measures taken?
9. Are all the records that are maintained of the collection of solid waste daily?
10. Is the Indian government planning to set up a treatment plant?

### **Daily report –**

#### Day 1

Visited the dumping yard Jhiri on Saturday 6<sup>th</sup> of April. Collected data's regarding solid waste management and interacted with officials and 2 of the tractor drivers and got the information.

#### Day 2

Visited Ranchi Municipal Corporation (RMC) on Friday 12<sup>th</sup> of April. Met one of the group heads and got to know many things about waste management.

#### Day 3

Visited a society at Kokar on Wednesday 17<sup>th</sup> of April. Collected data's around the blocks of the society and asked the members about the positives and negatives of waste management through a questionnaire.

### **SOCIETY VISIT-**

1. The garbage is collected by the Ranchi Municipal Corporation, with the help of the mega, jeep in after every two days.
2. There are a total of three garbage boxes that are emptied on after two days.
3. There is no system in the society to segregate solid or liquid waste.
4. We visited a society- from where we took up three families each from Block-A, B and C.

### BLOCK-A

SL.NO	QUESTIONS	F1	F2	F3
1	Is Garbage collected daily	no	no	no
2	Are there separate bins for liquid and solid wastes	no	no	no
3	Is RMC doing their work properly	yes	yes	yes
4	Are there any negative impacts on environment	yes	yes	yes
5	Do you recycle waste	no	no	no
6	Are you aware of the programmes related to environmental pollution	yes	no	no
7	Are there is any difficulties in rainy season	yes	yes	yes
8	Is there any need to setup waste treatment plant in the city	yes	yes	yes
9	Are you contributing towards Swachh Bharat Abhiyan	yes	yes	yes
10	Do you use organic bags instead of plastic bags	yes	no	no

### BLOCK-B

SL.NO	QUESTIONS	F4	F5	F6
1	Is Garbage collected daily	no	no	no
2	Are there separate bins for liquid and solid wastes	no	no	no
3	Is RMC doing their work properly	no	yes	yes
4	Are there any negative impacts on environment	yes	yes	yes
5	Do you recycle waste	no	no	no
6	Are you aware of the programmes related to environmental pollution	yes	no	no
7	Are there is any difficulties in rainy season	no	yes	yes
8	Is there any need to setup waste treatment plant in the city	yes	yes	yes
9	Are you contributing towards Swachh Bharat Abhiyan	yes	yes	yes
10	Do you use organic bags instead of plastic bags	yes	no	yes

### BLOCK-C

SL.NO	QUESTIONS	F7	F8	F9
1	Is Garbage collected daily	no	no	no
2	Are there separate bins for liquid and solid wastes	no	no	no
3	Is RMC doing their work properly	no	yes	yes
4	Are there any negative impacts on environment	yes	yes	yes
5	Do you recycle waste	no	no	no
6	Are you aware of the programmes related to environmental pollution	yes	no	no
7	Are there is any difficulties in rainy season	no	yes	yes
8	Is there any need to setup waste treatment plant in the city	yes	yes	yes
9	Are you contributing towards Swachh Bharat Abhiyan	yes	yes	yes
10	Do you use organic bags instead of plastic bags	yes	no	yes

### COMBINED DATA

SL.NO	QUESTIONS									
1	Is Garbage collected daily	F1	F2	F3	F4	F5	F6	F7	F8	F9
2	Are there separate bins for liquid and solid wastes	no								
3	Is RMC doing their work properly	no								
4	Are there any negative impacts on environment	yes	yes	yes	no	yes	yes	no	yes	yes
5	Do you recycle waste	yes								
6	Are you aware of the programmes related to environmental pollution	no								
7	Are there is any difficulties in rainy season	yes	no	no	yes	no	no	yes	no	no
8	Is there any need to setup waste treatment plant in the city	yes	yes	yes	no	yes	yes	no	yes	yes
9	Are you contributing towards Swachh Bharat Abhiyan	yes								
10	Do you use organic bags instead of plastic bags	yes								
		yes	no	no	yes	no	yes	yes	no	yes

## **CONCLUSION**

The handling and removal of waste materials, with certain processes that include collection, transportation, processing, recycling, and the end disposing of. There are a few disposal methods such as Recycling, Incineration, Composting, Sanitary landfill and Biological reprocessing. The 3R's are Reduce, Reuse and recycle is very important. One more term such as educating people about waste management is very crucial these days as the environmental situation is not that good and is declining in its state day by day and further steps are necessary to be taken, one of them being spreading awareness. It is very critical to the perseverance of global health and the security of humankind.

The precautionary approach justifies the use of cost-effective measures to prevent environmental degradation even in the absence of full scientific certainty. This principle has obvious applications to various forms of environmental pollution. Sustainable waste management plays a vital role in reducing the number of natural resources that have been consumed, and the materials that are taken from the environment must be reused as many times as possible and the waste created should be kept to a minimum.

A total number of 400 to 450 tonnes of solid waste is collected and dumped there from all over the city in one day. These all include Biomedical waste, household wastes, industrial wastes and all kinds of solid wastes, etc. These wastes are brought over using tractors, dumpers, jeep and mega from 7 MTS stations in Ranchi. These MTS stations do a job of collecting solid wastes from 53 wards and it also separates medical wastes. In the Society, we got to know that all the garbage which is collected by the Ranchi Municipal Corporation, with the help of the mega, jeep in after every two days. There are a total of three garbage boxes that are emptied on after two days. There is no system in the society to segregate or separate solid or liquid waste.