

# Analysis Of Recycling Solid Waste By Mining Technique

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**Abstract:** Environment issues are increasing day by day as population is growing on. Wastes are main issue that put effect on environment. The substances in waste are vary according to their category. Some substances are recycled but some are not recycled. This paper presents the mining of solid waste according to their classification. Material present in solid waste are arranged into classes according to their features. After arrangement the recycling technique is applied on each class to recycle and reuse them.

**Keywords:** Solid Waste, Liquid Waste, Mining, Recycling and Reuse.

## 1. Introduction

Wastes are the residue that comes after using a Substance. We can also say that substances become a waste when its lifetime is over. The quantity of waste is increasing day by day. In 1947 quantity of waste is 6 million. In 1997 its quantity becomes 48 million tonnes. It is important to decrease the quantity of waste and handle it in a proper way. The increasing nature of waste put a effect on different area such a health, pollution, soil contamination and surface water contamination. It is necessary to manage the waste into proper way. Various rules and acts passed by government to manage the waste. Recycling and reusing the waste is one way to control its quantity. Recycling is the process of using a waste material again regenerating it into a new form. Everyone that living in this environment has its own waste whether it is living or non living. Waste is of different types according to the nature of substances. Mostly generated waste comes into the category of solid waste and liquid waste. Solid waste and liquid is further falls into different categories. Recycling technique is mostly applied on the solid waste. Solid wastes are easy to handle if we arrange them into classes by using mining technique. During recycling technique the wastes are regenerated again into another useable solid form. Solid waste such as commercial waste, Institution waste, Municipal waste, Garbage waste, Ashes, Bulky waste, dead animal waste comes from daily activities. During daily activities waste are mixed with each other. To manage the waste into proper way refining of waste is important according to their nature. Government put affords to limit the quantity of solid waste by doing their waste management activities

## 2. LITERATURE REVIEW:

A. Zahedi present the clear view of conversation of household waste into energy with the help if incineration. This paper also defines the energy function of waste material produced every day, with description of major equipment used in incineration plant D.H Maunder explain the transformation of biomass and solid waste into bio fuels that leads in the production of electricity. Electric energy is may be generated from bio fuels in improving environment status. S.Walker discusses the outlines of power generation process and the power plant technology used which is based on gas turbines, spark ignition engine and dual fuel compression

engine. J. Chakraverthi explains the production of biogas and energy production from cattle waste. Chakraverthi tells the gas produced from this waste is further used for water heating of form houses, cooling lighting and grain drying. In this paper the biogas plant is studied and economic value is evaluated. G.Tomberlin and Moorman represent the generation of energy from municipal solid waste. It is an environment friendly idea to generate energy from municipal solid waste and decrease the quantity of municipal solid waste. paper.

## 3. SOLID WASTE:

The wastes that are in moving form come under the category of liquid waste. While the waste that is not in moving form come under the category of solid waste. Solid waste is easy to handle by defining their category. There are the following types of solid waste:

### 3.1 DOMESTIC WASTE

Domestic waste is generated by household activities such as cooking, clothing, books, newspaper, repair, cleaning. Domestic wastes are those wastes that come under category of daily occurrence.

### 3.2 COMMERCIAL WASTE

Solid waste generated in offices, wholesales, restaurants, stores, hotel etc. Waste that arises from food waste are easily degrade and used for framing purpose.e

### 3.3 INSTITUTIONAL WASTE

Waste generated from institutes, collages, schools, training centres are come the category of institutional waste.

### 3.4 MUNICIPAL WASTE

Municipal waste arises due to municipal work.

### 3.5 DOMESTIC WASTE

In farming or dairy work there are lot of solid waste. Cow dung, Papers, etc are used as fertilizers to improve the growth of crops. Biogas plants are implemented to generate a biogas from cow dung.

**3.6 BULKY WASTE**

Large household appliances such as cookers, refrigerators, microwave and fans are come under the category of bulky waste. These wastes are recycled to new form to overcome the quantity of waste on large scale.

**3.7 DEAD ANIMALS WASTE**

As we know the fossil fuels comes from the decomposition of dead animals and dead plants that are sank into the bottom of ground. The bones of dead animal are used for decoration and in medical field

**4. METHODOLOGY**

It is important to reduce the quantity of day by day increasing waste. From the large heap of waste it is difficult to recycle and renewed it. For recycling of waste into new form it is important to arrange the waste into categories. We can arrange the waste into categories by defining the classes according to mining techniques. Once the waste is arranged into categories then arranges them according to their specification criteria such as thickness, type, usage etc. After arranging the waste into different classes recycles them into useful form. Decompose those that are not useful for further purpose.

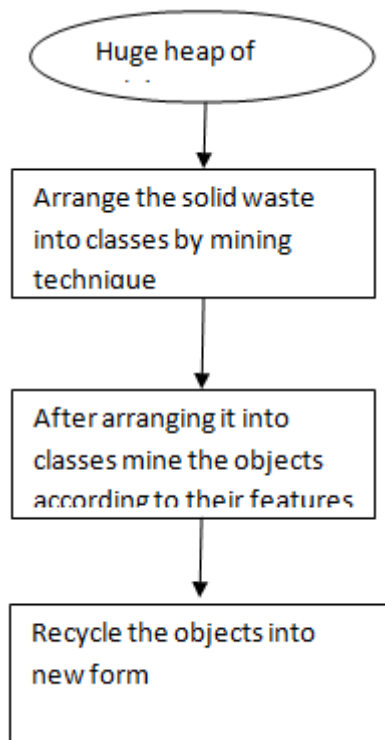


Figure 1: Methodology used for mining of Waste

**5. RESULTS AND ANALYSIS**

**5.1 Quantity of solid waste on the basis years:**

As we know quantity of solid waste is rapidly increases day by day. The bar chart given below shows the quantity of solid waste based in years. The given chart shows the quantity of solid waste in terms of years. It is clear from the chart that the solid waste is increases day by day. In 1950 1960 the quantity of solid waste is lies between the ranges of 1-1.5 kg/day. While 2020 quantity becomes more than 2 kg/day.

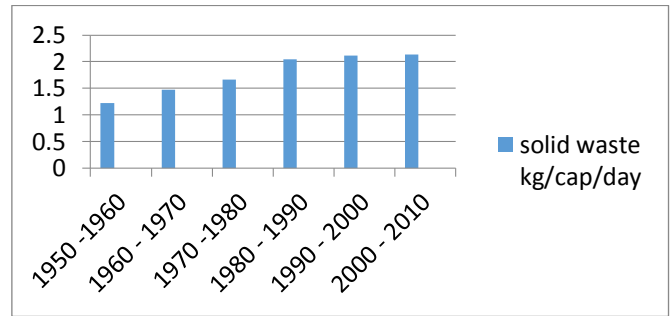


Figure 2: Shows the quantity of solid waste per year

**5.2 Quantity of solid waste on the basis of countries**

The column chart given below shows the quantity of waste in countries. It is clear from the chart the Japan is at top for producing more solid waste while Malaysia is at lowest rank. India Nepal Bangladesh and Mongolia are at level.

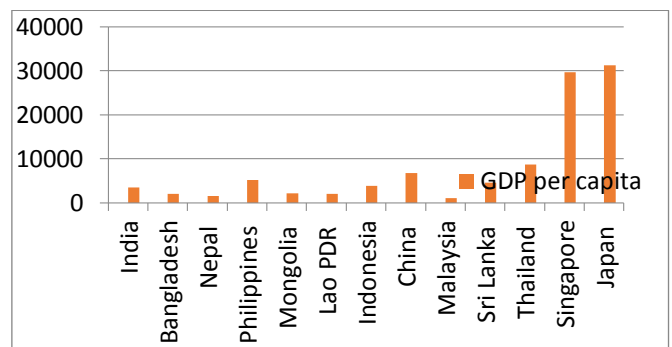


Figure 3: Shows the quantity of waste per country

**5.3 Quantity of solid waste in cities of India.**

As we know country serves cities. In India each city is responsible for producing solid waste. In the pie chart given below each city with the percentage of solid waste is mentioned in proper way. It is clear from the pie chart in India West Bengal is most solid waste producing city in India.

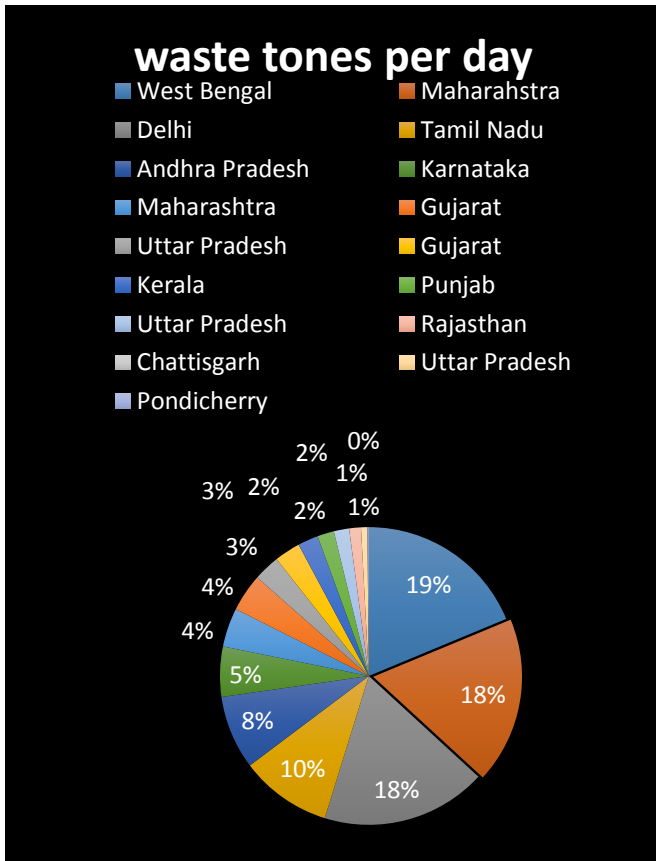


Figure 3: Shows the quantity of solid waste in cities of India tone per day.

### 5.4 Comparison of solid waste before recycling and after recycling of India.

It is important to recycle the waste into new form to control is amount. Here the result is made on the bases of quantity of solid waste before recycling and its quantity after recycling. From the chart it's clear that the quantity for solid waste reduces to half of its original quantity. From food the items that are not recycled we can use them for another purpose such in farming for making fertilizers etc

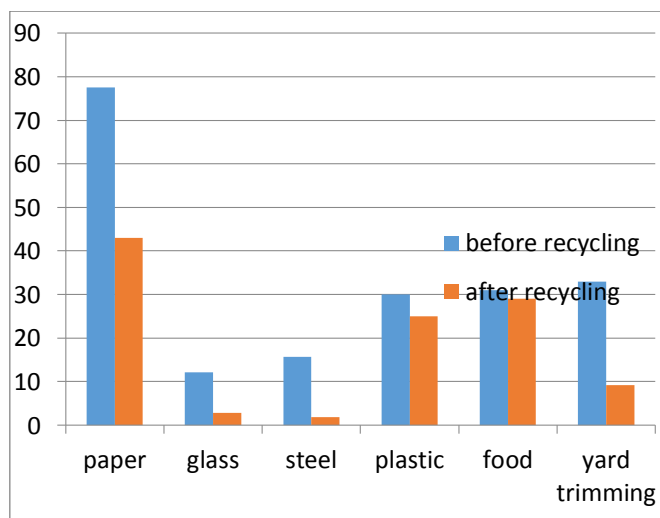


Figure 4: shows the quantity comparison of solid waste before recycling and after recycling.

### Conclusion:

It is important to control the heaps of waste to reduce environment classes. In this paper mining technique is applied on classes to manage and recycle the solid waste in proper way. Solid wastes are arranged in classes to according to their specifications. Recycling process is applied on the objects of classes to generate them into new form. This paper gives a idea about the items that can be recycled at large rate. Analysis of solid waste according to cities and years are also presented in this paper.

### Future Work:

This technique can be applicable on other waste such as sanitary waste, on composition of gases for recycling and reuse purpose. It is analyzed from the result that there is a need to use decomposable material instead of plastic .

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#### Author Profile



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