

# **WASTE MANAGEMENT PROBLEM IN RAGHUMANDA VILLAGE**

Social Relevant Project Report submitted for partial fulfillment of requirements

for the award of degree of

**Bachelor of Technology**

**in**

**Civil Engineering**

*Submitted by*

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## **CERTIFICATE**

This is to certify that Social Relevant Project entitled "**A Social Relevant Project carried in Raghumanda Village**" is the bonafide work carried during the academic year 2022-2023 by "**A. Raj Kumar**" under the guidance of **Mr. B. Ramu, Assistant Professor** is submitted to the Department of Civil Engineering, MVGR College of Engineering (Autonomous), Vizianagaram.

HoD – Civil Engineering

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## **CHAPTER - 1**

### **INTRODUCTION ABOUT THE PROGRAM**

Social relevant project is a community service project and is part of our academics. We have been divided into a team of 4 members to carryout this project. As part of this, we have chosen Raghunanda village for our project. We have made few field visits and gathered detailed information about the village relating to various aspects which have been mentioned in this report. We have inquired about available facilities in the village, living conditions of the people, their financial status. We have also identified few major problems that they are facing, which they would like to get resolved.



**Fig. 1.1 & 1.2 Images captured during field visit**

Out of all the problems that are identified, we have selected individual problem statements for carrying detailed analysis. We have focused on our areas of study, spent time regarding this, referred various research journals and finally came up with one best solution for the problem that we have chosen.

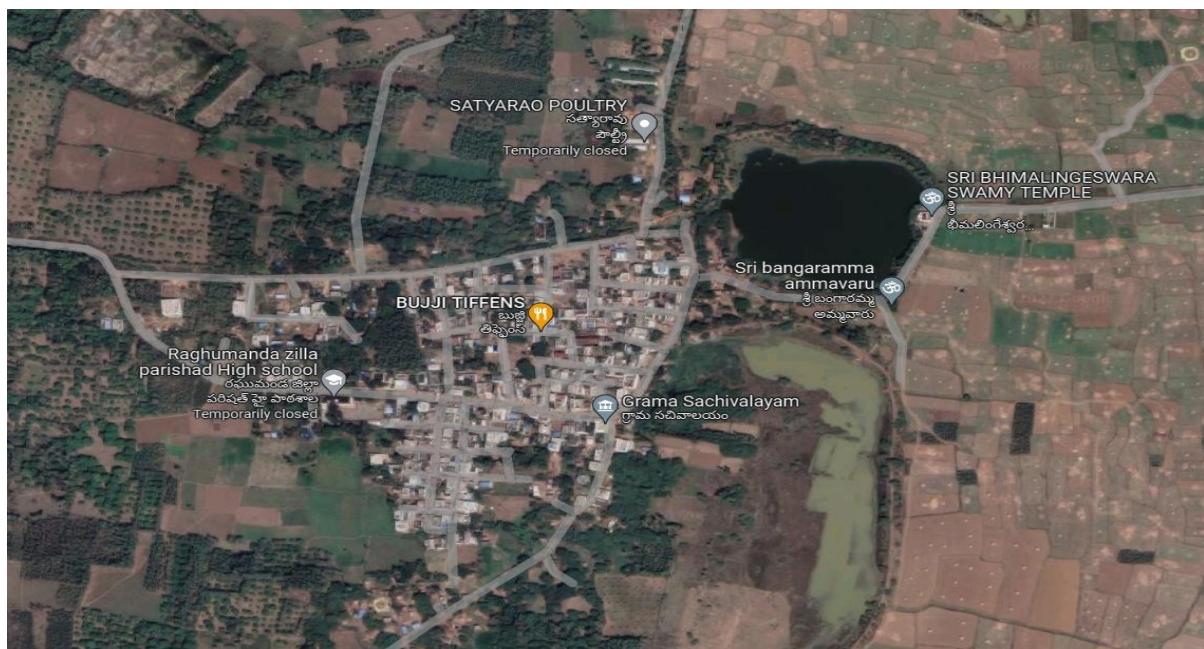
This project helped us to explore more about the village which helped us to acquire life skills and knowledge. Also helped in acquiring team working spirit and in improving our communication skills.

## **CHAPTER - 2**

### **INTRODUCTION ABOUT THE VILLAGE**

#### **Location of Study Area : Raghumanda**

According to Census 2011 information the location code or village code of Raghumanda village is 583202. Raghumanda village is located in Denkada mandal of Vizianagaram district in Andhra Pradesh, India. It is situated 16km away from sub-district headquarter Denkada (tehsildar office) and 8km away from district headquarter Vizianagaram. As per 2009 stats, Raghumanda village is also a gram panchayat. As per the Census Data 2011 there are 906 Femals per 1000 males out of 1647 total population of village. There are 1023 girls per 1000 boys under 6 years of age in the village.



**Fig. 2.1 Satellite image of Raghumanda village**



**Fig. 2.2 Entrance image of Raghumanda village**

### Village Census Data (as per 2011 records):

Sl. No.	Census Parameter	Census Data
1.	Village Name	Raghumanda
2.	Teshil Name	Denkada
3.	District Name	Vizianagaram
4.	State Name	Andhra Pradesh
5.	Total Population	1647
6.	Total Area	529 Hectares
7.	Total No of Houses	410
8.	Total Male Population	864
9.	Total Female Population	783
10.	0-6 Age group people	176
11.	0-6 Age group Male Population	87
12.	0-6 Age group Female Population	89
13.	Total Literacy rate %	55.9 % ( 921)
14.	Female Literacy rate	23.3 % ( 384)
15.	Male Literacy rate	537
16.	Total Ill-literate rate	726
17.	Scheduled Tribes Population %	0.1 % ( 1)
18.	Scheduled Caste Population %	13.0 % ( 214)



**Fig. 2.3 Entrance arch**



**Fig. 2.4 Overhead tank**

The total geographical area of village is 529 hectares. Raghumanda has a total population of 1,647 peoples, out of which male population is 864 while female population is 783. There are about 410 houses in raghumanda village. Pincode of raghumanda village locality is 535005.

Vizianagaram is nearest town to raghumanda for all major economic activities, which is approximately 8km away. Vizianagaram Junction Rail Way Station , Korukonda Rail Way Station & Nellimarla Rail Way Station are the very nearby railway stations to Raghumanda. Chintalavalasa Amakam, Chelluru & Malicherla are the nearby Villages to Raghumanda. Raghumanda is surrounded by Vizianagaram Mandal towards North , Padmanabham Mandal towards South , Bhogapuram Mandal towards East , Nellimarla Mandal towards North .

### **Details regarding available facilities :**

<b>Sl. No.</b>	<b>Basic Facilities</b>	<b>Availability (Yes/No)</b>	<b>Description</b>
1.	Schools	Yes	Two Government schools & One Private school.
2.	Roads	Yes	Connected with bitumen roads & partly with kutcha road.
3.	Bank & Atm	Partial	Grameena Vikas Bank, but no ATM facility.
4.	Hospital	No	Construction of new hospital is in progress. Weekly medication camps were conducted.
5.	Anganwadi schools	Yes	Two Anganwadi's.
6.	Petrol Bunk	No	NA
7.	Restaurants/Hotel	No	Only Tiffin centres.
8.	Waster supply	Yes	Overhead tank water is supplied daily
9.	Transportation Facility	Partial	Only autos are available.
10.	Police station	No	NA
11.	Sports Club	No	NA
12.	Environment Club	No	NA
13.	Rhytu bazar	No	NA
14.	Grama Sachivalayam	Yes	
15.	Library	No	NA

## **Workers profile of Raghumanda Village :**

Agriculture is major occupation in this village from past decades. In addition to this, people are working as workers, cultivators, labourers, marginal workers, household industries etc. Total working population of Raghumanda is 667 which are either main or marginal workers. Total workers in the village are 667 out of which 511 are male and 156 are female. Total main workers are 571 out of which male main workers are 499 and female main workers are 72. Total marginal workers of village are 96.

<b>Sl.No.</b>	<b>Workers Profile</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
1.	Main workers	499	72	571
2.	Main workers cultivators	84	7	91
3.	Agriculture labourer	80	37	117
4.	Household industries	18	0	18
5.	Other workers	317	28	345
6.	Marginal workers	12	84	96
7.	Non-workers persons	353	627	980
8.	Total Workers	511	156	667

## **Educational Institutions :**

Out of total population, total 921 people in Raghumanda Village are literate, among them 537 are male and 384 are female in the village. Total literacy rate of Raghumanda is 62.61%, for male literacy is 69.11% and for female literacy rate is 55.33%. There are 3 schools in Raghumanda village. They are Government Elementary School, ZP High School and Amaravathi English Medium School as shown below. MVGR College of Engineering is the nearest Engineering college to this village which is 3.6 km far.



**Fig. 2.5 Government Elementary school**



**Fig. 2.6 ZP High school**



**Fig. 2.7 Amaravathi EM School**

### **Agriculture Details :**

- Type of Crop Grown : Paddy Crop (*Vari*).
- Sources of water : Gudigundam, Pedha cheruvu & Kothagundam.
- Quality of water : Suitable for cultivation.

Agriculture is major occupation for the people in this village. Most of the families rely on this. But at times of less rainfall, cultivation is stopped due to lack of availability of sufficient quantity of water from available sources. Paddy which is a kharif crop is sown in rainy season every year in this village. Crop yielding is good.



**Fig. 2.8 & 2.9 Agriculture lands**



**Fig. 2.10 & 2.11 Satellite images of agriculture lands**

### **Government Buildings :**

1. Gram Sachivalayam office.
2. VRO office.
3. Grameena Vikas Bank.
4. Anganwadi school.



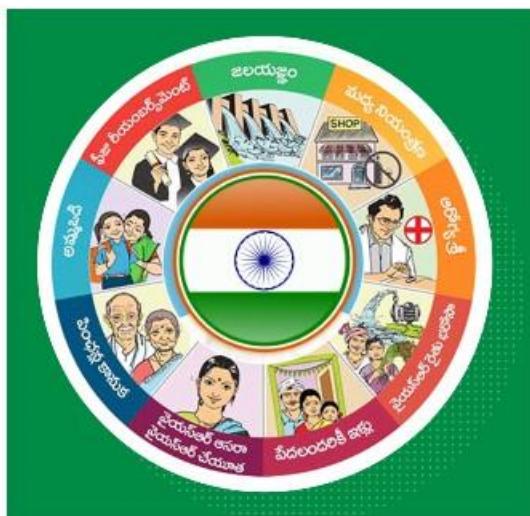
**Fig. 2.12 Gram Sachivalayam office**

## **Benefits from the government :**

There are several schemes launched by the government of India this year. These programs help in the social and economic welfare of the nation. All Schemes of the Government of India are launched to solve many social and economic problems that are faced by the citizens. In 2022 several schemes are launched and several old schemes are re-launched with extended years of the policy. Government launches many schemes and programs every year to address the concern of citizens over issues faced by them. The central and state government invests the required amount for the commencement of the scheme and program.

Some of the benefits that are received by people of this village include,

- YSR Raithu Bharosa.
- Arogyasri.
- Ammavodi.
- YSR colonies (Housing for poor).
- Pensions.



**Fig. 2.13 Beneficial schemes from gov.**

## **Additional information :**

Hinduism is major religion and Telugu is the Mother tongue language in this village. Toilet facility is available for almost all the houses and are well utilized. Gas cylinders and traditional stoves are used for cooking.

For drinking water, overhead tank water, bore water & mineral water are used based on their preferences. Electricity facility is available, but there is frequent power cuts. There are no sports clubs, Rhytu bazars, Police station in this village.

### Types of houses :



**Fig. 2.14 Cottage**



**Fig. 2.15 Modern house**



**Fig. 2.16 Semi-detached house**

## **CHAPTER - 3**

### **PROBLEMS FACED BY THE VILLAGE**

1. Open burning of domestic waste without proper disposal.
2. Improper maintenance of drainage system.
3. Insufficient water for cultivation, at times of less rainfall.
4. Disturbance due to mosquitoes & dogs.
5. Electricity & Signal problems.
6. Job Scarcity.



**Fig. 3.1 Burning of waste**



**Fig. 3.2 Drainage problem**



**Fig. 3.3 Barren lands**



**Fig. 3.4 Job scarcity**

## **CHAPTER - 4**

### **FOCUS OF STUDY**

#### **PROBLEM STATEMENT : ASSESSMENT ON EFFECTS OF OPEN BURNING OF DOMESTIC WASTE**



**Fig. 4.1 Open burning of domestic waste**

During our field visit, we have observed that all the household waste is being collected at a place and burnt openly. Some people are burning the waste beside their houses and surroundings. No proper disposal method is being followed. They were not aware of the severity and consequences that have to be faced because of this open burning of waste. This has resulted in release of harmful substances into the atmosphere.

#### **Open burning :**

Open burning refers to burning garbage in barrels, open pits, outdoor furnaces, wood stoves, or fireplaces without proper disposal of waste.

## **Open burning of domestic waste:**

Open burning of garbage is much more harmful to your health and the environment. Open burning is performed by many people worldwide, especially in developing countries. Even seemingly harmless materials like paper, cardboard, yard waste, and construction debris, releases a hazardous mixture of cancer-causing compounds and other toxic substances when open-burned.

Proper municipal solid waste (MSW) management is a critical issue in many developing countries. Community awareness, habits, household collection services, and other related factors are becoming essential to its management system. Open burning, waste dumping in waterways, and other uncontrolled waste management practices are still problems being faced when waste services are not present. These problems are strategically discussed in the local community to fulfill sustainable development goals (SDGs). However, the local government and community's lack of discipline and commitment cause many strategic actions to go slowly and become ineffective.

## **Causes of open burning :**

- Human negligence due to lack of awareness on ill-effects of open burning of domestic waste.
- Improperly maintained waste management systems such as municipalities.
- It is easier than hauling it to the local disposal site.
- To avoid paying for regular waste collection service.

## **Effects of open burning :**

### **1. Emission of smoke :**

Open burning of garbage poses health risks to those exposed directly to the smoke. It especially affects people with sensitive respiratory systems, as well as children and the elderly.

In the short term, exposure to smoke can cause headaches, nausea, and rashes. Over time, it can increase the risk of developing heart disease.

Some of the pollutants contained in the smoke from open burning of garbage can include:

- Dioxins
- Furans
- Arsenic

- Mercury
- PCBs
- Lead
- Carbon monoxide
- Nitrogen oxides
- Sulphur oxides
- Hydrochloric acid

Some of these pollutants can also end up in the ash that is left behind from open burning of garbage.

## **2. Severe health effects :**

One of the greatest concerns with open burning of garbage is the health risks posed by the release of dioxins and furans into the environment. Exposure to dioxins and furans has been linked to:

- Certain types of cancers.
- Liver problems.
- Impairment of the immune system, the endocrine system, and reproductive functions.
- Eye irritation & breathing difficulties.
- Effects on the developing nervous system and other developmental events.

## **3. Environmental effects :**

Since open burning of garbage is more common in rural and agricultural areas, there is particular concern for high levels of dioxins and furans settling on crops, in our streams, and in our lakes. Dioxins and furans produced by the open burning of garbage are deposited on plants, which are eaten by animals. The dioxins and furans are absorbed by these animals and stay in the food chain until they ultimately end up in our meat and dairy products. In fact, over 90 percent of our intake of dioxins and furans is from our diet.

## **CHAPTER - 5**

### **SOLUTION**

#### ***Awareness on importance of segregation of waste at household level***

Creating awareness on importance of segregation of domestic waste at household level for ensuring proper disposal of waste is chosen to be the best solution to tackle this problem of burning waste.



**Fig. 5.1 Dry waste & wet waste bins**



**Fig. 5.2 Waste collection vehicle**

#### **Segregation of waste :**

Segregation of waste refers to practice of separating waste into two forms i.e. into wet waste and dry waste. This segregation is essential because it makes the task of recycling dry non-biodegradable waste easier. It also simplifies the conversion of wet waste like leftover food, used tea leaves, etc. to compost. If waste is not separated or segregated properly, it all gets mixed up in landfills.



**Fig. 5.3 & 5.4 Unsegregated waste**

## **Types of domestic waste :**

### **1. Dry waste :**

Dry waste consists of waste that does not decay. It is also known as waste which cannot be biodegradable. Dry waste consists of paper, glass, thermocol, Styrofoam, rubber, metal, cloth, empty bottles, stationery, etc. and can be recycled into new products further. Before segregating, sharp materials like glass and other metals shall be kept in a separate bag/container. Dry waste is the kind of waste which is not biodegradable. Hence wet waste can be converted and recycled into new products and reused further.

### **2. Wet waste :**

Wet waste is all the kitchen waste that we produce i.e. vegetable peels, used tea bags, fruits, leftovers, coconut shells, flowers, leaves, meat or non-veg, expired food items, bread, biscuits, etc. This is organic waste which can be recycled and converted into compost. Most of the wet waste comes from the kitchen itself. Restaurants, buildings and factories need efficient wet waste management systems.

### **3. Sanitary waste :**

Sanitary Waste means wastes comprising of used diapers, sanitary towels or napkins, tampons, condoms, incontinence sheets and any other similar waste.



**Fig. 5.5 Types of domestic waste**

## Advantages of segregation of waste :

- Source segregation reduces the need for secondary segregation, which is capital, energy and land intensive.
- Waste segregated at source is least likely to be contaminated with other waste types, and therefore more likely to be recycled. As it is also more likely to be clean, the cost of pre-treatment before recycling or re-purposed is also reduced. For the above reasons, waste segregated at source is more attractive to recyclers.
- The treatment or recycling options for different waste types depends on the nature of waste. More often than not, the processes are cumbersome and expensive. Waste segregation contributes towards reducing the quantum of waste to be treated or recycled, thereby reducing cost.
- It also supports decentralized treatment options like community composting units and dry waste collection centres that are more efficient in waste management.
- Source segregation and recycling results in waste minimization, or lesser waste reaching landfills. This directly translates into longer life spans of landfills, and reduced demand for land for new landfills.
- Waste minimization resulting from primary and secondary segregation also translates into reduced greenhouse-gas emissions from waste dumps and landfills.
- Source segregation reduces the attractiveness of the existing in-human, unhealthy and hazardous practice of rag pickers rummaging through waste piles to salvage seal-able waste items.

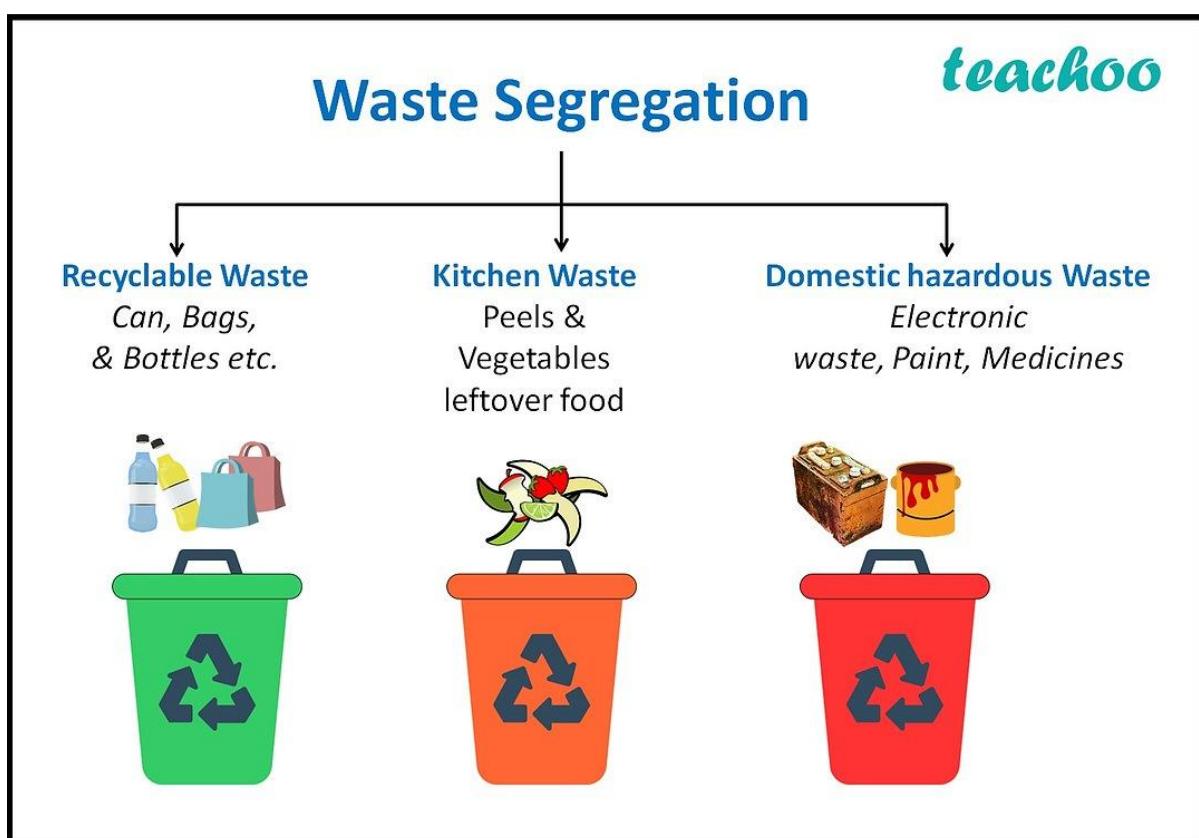


**Fig. 5.6 Benefits of segregation of waste**

## Importance of segregation of waste :

Waste management is one of the most crucial problems our country is facing right now. India produces 62 million tonnes of waste each year and households are responsible for most of this colossal number. When we segregate waste, there is not only a reduction of waste that gets land filled, it also further reduces pollution levels by lowering the percentage of garbage exposed to air and water. Wet waste and Dry waste segregation is necessary for every individual because it will help us keep our environment pollution free and also keep the environment healthy. These segregated wastes can be reused and especially plastic waste can be recycled into new products and plastic granules.

- Minimizes health risks.
- Makes the job easier for waste collectors.
- Minimizes dumping & Promotes recycling.
- Beneficial for upcoming generations.



**Fig. 5.7 Waste segregation**

## **Procedure to segregate the waste :**

Before understanding how we can separate waste in our homes, it is essential to know the difference between wet waste and dry waste. Wet waste is all the kitchen waste that we produce. This can include vegetable peels, used tea, fruits, leftovers, etc. This is biodegradable organic waste that can also be composted. Dry waste comprises paper, glass, plastic, cardboard, Styrofoam, rubber, metal, food packaging material, etc. Even milk cartons and packets go into a dry waste bin. Dry waste is recyclable but will be rejected if it is contaminated or soiled.

- Label and keep two separate containers, one for wet waste and the other for dry waste. You may also use two different colors it will help you differentiate quickly.
- Keep two bags for dry waste collection, one for plastics and paper and the other for the rest of the household waste.
- Dispose sanitary waste in a paper bag. Diapers (adults and babies), synthetic sanitary napkins and hygiene-related products are classified as sanitary waste.
- Keep plastic waste from the kitchen clean and dry before you drop it into the dry waste bin. Keep glass/plastic containers rinsed of food matter.
- Wet waste should be sent out for composting daily. Try sending dry waste for recycling once every week.

## **CONCLUSION**

Hence by creating awareness on importance of segregation of domestic waste at household level helps in reducing all the consequences that may arise because of open burning of domestic waste. This in turn results in efficient management of waste. Making people of the village aware of this makes them realize their role & responsibility towards the nature and society. Making them segregating the waste before disposal makes the management process easier and reduce severe health problems that may occur.



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