Exploring Plastic Waste Management practices in the Savar Region

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ABSTRACT

Plastic waste administration is a squeezing ecological test, especially in metropolitan regions like Savar, Bangladesh, where quick populace development and urbanization have strengthened squander age. This proposal examines the ongoing practices, difficulties, and expected answers for overseeing plastic waste in Savar. Through a blended techniques approach that incorporates field overviews, interviews with neighborhood partners, and examination of existing strategies, the review recognizes huge holes in squander assortment, reusing endeavors, and local area commitment

Discoveries uncover that deficient framework, absence of public mindfulness, and incapable strategy authorization add to the raising plastic waste emergency. Besides, the exploration features the ecological and wellbeing ramifications of ill-advised squander the executives, remembering contamination and its belongings for nearby environments. The proposition proposes a complex technique that incorporates local area schooling programs, improved squander assortment frameworks, and the advancement of elective materials to plastic. By drawing on effective contextual analyses from different locales, the exploration frames significant suggestions custom- made to the particular setting of Savar. At last, this study expects to add to maintainable waste administration practices and cultivate a cleaner, better climate orhelocalarea.

TABLE of CONTENTS

LIST of FIGURES

LIST of TABLES

CHAPTER I
INTRODUCTION

1.1 General

Plastic waste has emerged as one of the most significant environmental challenges of the 21st century. With its versatile use, durability, and low production cost, plastic has become a staple in modern life. However, its widespread utilization has led to a surge in plastic waste generation, which, if not managed effectively, can have severe implications for ecosystems and human health. (Ahmed, 2020) Plastic has transformed contemporary economies in a variety of ways, from packaging to industrial goods and medical equipment (Bhuvaneshwari, Community-based approaches for effective plastic waste management., 2022). But the same qualities that make plastic so valuable also play a part in its environmental persistence: its resilience to deterioration and strength. Plastics can cause long-term environmental pollution because they can take hundreds of years to break down after being discarded. Over the past few decades, plastic production and consumption have increased dramatically on a global scale. 400 million metric tons of plastic are produced annually, and the number is still rising, according to recent studies (Hossain S. R., 2021). Like many developing nations, Bangladesh is seeing a sharp increase in plastic consumption as a result of industrialization, urbanization, and shifting consumer habits. Plastics are now a necessary component of everyday life, but incorrect disposal and poor management can have serious negative effects on the environment. Situated close to Bangladesh's thriving capital, Dhaka, the Savar area is an industrial zone that is rapidly developing and has experienced notable economic growth in recent times. Savar is home to a variety of industries, including food processing facilities, tanneries, textiles, and pharmaceuticals. Its growth is essential to the nation's industrial sector. But along with this expansion has come an increase in waste production, especially plastic waste. The area's growing population and the establishment of new industries highlight the urgency of developing efficient waste management plans. A number of variables, including Savar's high population density, fast industrialization, and inadequate waste disposal infrastructure, make the city's plastic trash problem especially problematic. While solid waste management is a challenge for many Bangladeshi municipalities, Savar faces an even greater challenge due to the large amount of industrial trash, a large portion of which is composed of plastic products. Due to a lack of formal waste management systems and inadequate recycling facilities, plastic trash is frequently disposed of in open landfills, dumps, or aquatic bodies. These practices contribute to the contamination of rivers and other water sources, which are essential for the region's agriculture and fishery, in addition to contaminating soil and groundwater.

1.2 Objective

The primary objective of this study is to examine plastic waste recycling practices in Bangladesh and assess their economic, environmental, and social impacts. Specifically,

the research aims to achieve the following objectives:

1. Evaluate the current state of plastic, electric, and construction waste recycling in Bangladesh.
2. Dentify the economic implications of waste recycling initiatives.
3. Assess the environmental impacts of plastic waste recycling.
4. Investigate the social dimensions of waste recycling in Bangladesh.
5. Explore the challenges and opportunities associated with waste recycling.
6. Provide recommendations for improving waste recycling practices.

This study seeks to contribute to the body of knowledge on waste management and recycling practices in Bangladesh, inform policy development and decision-making processes, and promote sustainable development in the country.

1.3 What is waste

Waste refers to any unwanted materials discarded after fulfilling their purpose. These unwanted materials can be solid, liquid, or gas. Waste can be generated from human activity in residential, industrial or commercial contexts or by natural processes.

Figure 1: Waste

There are different types of waste:

- **Solid waste:** This includes household trash, food scraps, yard waste, debris, and packaging materials.
- **Liquid waste:** This includes sewage, wastewater from industrial processes, and runoff from agricultural land.
- **Gaseous waste:** This includes emissions from vehicles, factories, and landfills.

1.4 What is waste Recycle

Waste recycling is the process of taking used materials that would normally be thrown away and transforming them into new products. It's a key part of the concept of "Reduce, Reuse, recycle" which prioritizes minimizing waste generation.

Figure 2:Recycling Process

1. **Collection**: Waste is collected from homes, businesses, and industries. This might involve curbside pickup, drop-off centers, or dedicated bins for specific materials.
2. **Sorting:** Once collected, the waste is sorted by material type. This can be done manually at sorting facilities or with automated sorting technology that uses magnets, optical scanners, and other tools to separate materials.
3. **Processing:** The sorted materials undergo various processes depending on the material. For instance:
    i. **Plastic bottles** might be crushed, washed, and flaked.
    ii. **Paper** might be pulped and cleaned.
    iii. **Glass bottles** might be crushed into cullet (small, broken glass pieces).
    iv. **Metal cans** might be baled (compressed into large cubes).
4. **New Materials:** The processed materials are transformed into usable raw materials for new products. For example, plastic flakes can be melted and turned into plastic pellets for manufacturing new plastic items.
5. **Manufacturing:** Recycled materials are used alongside virgin materials (newly extracted resources) to manufacture new products. This could include things like:
    i. Plastic bottles from recycled plastic pellets.
    ii. Paper products from recycled paper pulp.
    iii. New glass containers from cullet.
    iv. Building materials incorporating recycled metals.
6. **New Products:** The final stage is the creation of new products from the recycled materials. These products can then be used and potentially recycled again in the future, closing the loop.

By recycling waste, we can conserve resources, reduce pollution from landfills and incineration, and create a more sustainable future.

1.5 History of Waste Recycling Process in Bangladesh

Waste management has historically been a challenge in Bangladesh due to rapid urbanization, population growth, and increasing consumption. While formal waste recycling practices are relatively recent, informal recycling has existed for decades. Here's a breakdown of the history of waste recycling in Bangladesh:

Pre-Independence (Before 1971):

- Waste management was primarily the responsibility of individual households and communities.
- Informal waste pickers collected recyclable materials like metals and glass for resale.
- There was no organized system for waste collection or recycling.

Early Independence (1971-1990s):

- The government established some waste collection services in major cities.
- Informal recycling continued to play a significant role, with waste pickers forming a vital part of the waste management system.

Growing Awareness (1990s-2000s):

- Environmental concerns began to gain traction, leading to increased awareness
- of the need for proper waste management.
- The government introduced some policies to promote waste recycling, such as the Waste Management Rules (1997).
- Non-governmental organizations (NGOs) started pilot projects for community-based waste recycling initiatives.

Limited Progress (2000s-2010s):

- Despite some policies and initiatives, formal waste recycling remained limited.
- The informal sector continued to dominate waste collection and sorting.
- Lack of infrastructure, investment, and public awareness hindered progress.

Recent Developments (2010s-Present):

- Increased focus on environmental sustainability has led to renewed efforts in waste management.
- The government has introduced new policies and initiatives, including the Solid Waste Management Rules (2019).
- Public-private partnerships are being explored to establish formal recycling facilities.
- Technological advancements like automated sorting are being piloted**.**

Table 1:Waste Generation and Recycling in Bangladesh

Parameter	Data
Municipal Solid Waste Generation (per capita/day)	0.7 kg
Plastic Waste Generation (annual)	1.2 million tonnes
Formal Recycling Rate (estimated)	Less than 10%
Informal Recycling Workforce (estimated)	2-4 million people

CHAPTER II
LITERATURE REVIEW

2.1 Overview

Waste generation is a major issue in Bangladesh due to rapid urbanization and population growth. Bangladesh generates around 9,000 tons of municipal solid waste per day, with plastic waste being a significant component. (Geyer, production, use, and fate of all plastics ever made., 2017). In Bangladesh, plastic waste management is particularly problematic in urban and industrial areas like Savar, where the population has increased, but waste management systems have not kept pace. found that over 10% of Dhaka's total waste consists of plastics, a figure likely mirrored in areas like Savar.

2.2 Background Of Plastic Pollution On The Global Level

The immense rise in plastic manufacture and ineffective disposal strategies on a global level has resulted in plastic contamination becoming a serious international issue. According to (Geyer, Production, use, and fate of all plastics ever made., 2017), from the 1950s until today we have produced 8.3 billion tons of plastic and roughly 60% sits in a landfill, the ocean or in environmental litter. This phenomenon is then worsened in a lot of developing nations where the framework and waste administration strategies were not appropriate (Lebreton, 2019).

2.3 Plastic Waste Management: The Current Practices

There are a number of studies that showed plastic waste management practices and challenges in urban areas. (Sarker, 2019) In Bangladesh, many cities are still highly dependent on informal setups of waste management, in which the workings of waste pickers are integral in collecting and recycling plastics. Nevertheless, within these informal systems, there is little to no regulation, making the working environment ineffective and unsafe. Plastic waste is not only a hazardous agent but also a demand that less than 10% of plastic waste is recycled, while most of the waste will eventually be landfilled or open dumped (Hossain et al., 2021).

2.4 Impacts of Plastic Pollution

Plastic contamination has a significant affect on the environment influencing both earthly and marine environments. Inquire about by Ahmed et al. Agreeing to (2020), the predominance of plastic squander seem sully the soil and the water which would influence agribusiness and contrarily affect the wellbeing of people. In expansion, squander on the road can conclusion up on shoreline or water sources, and plastic flotsam and jetsam has been recognized as a risk to natural life due to ingestion and ensnarement among other issues (Hossain T. &., 2021).

2.5 Framework of Arrangement Interventions

Many government and non-governmental organizations in Bangladesh have executed distinctive plastic squander administration intercessions. Since 2006, the Comprehensive National Squander Administration Arrangement has been defined to create a more coordinates approach to oversee strong squander, plastics included. In any case, execution of these arrangements proceeds to be shallow, and there are urban ranges where the actualizing logs of these approaches are no place to be found (Kibria, 2021). Endeavors to advance open mindfulness and community inclusion in squander administration have been recognized as basic for upgrading the adequacy of these approaches (Jambeck, 2015).

2.6 Future Bearings for Research

Variations of this future inquire about ought to center on assessing the viability of existing plastic squander administration hones, and on recognizing inventive arrangements to enhance reusing rates. In them, exploring community-based ways of life out and about was huge to get squander and reusing highlights, the mix of innovation in reusing handles may offer great experiences for strategy producers (Bhuvaneshwari, Community-based approaches for effective plastic waste management., 2022). In addition, the role of education and public participation in promoting sustainable waste management practices deserves further investigation

CHAPTER III
METHODOLOGY

3.1 Research Question & Methodology

What is your awareness regarding the importance of recycling plastic waste for environmental sustainability?

How frequently do you participate in recycling programs for plastic waste?

What factors influence your decision to recycle plastic waste?

Have you encountered challenges in properly disposing of plastic waste in your community?

How effective do you think the current waste management systems are in Bangladesh in handling plastic waste?

Are you willing to pay a premium for products made for recycled plastic waste?

How important do you think government policies and regulations are in promoting sustainable waste management practices?

How important do you think government policies and regulations are in promoting sustainable waste management practices?

How do you usually dispose of plastic waste?

3.2 The research goal and objectives have been achieved through

Review of available literature, data and relevant information on waste management projects and policies both national and international.

Formal and informal interviews with community leaders, family members.

Formal and informal interviews with Plastic waste management officials' discussion and with local NGOs

Administration of questionnaires to households and institutions to assess public participation in programmers, policies and various waste management practices.

3.3 Research Design

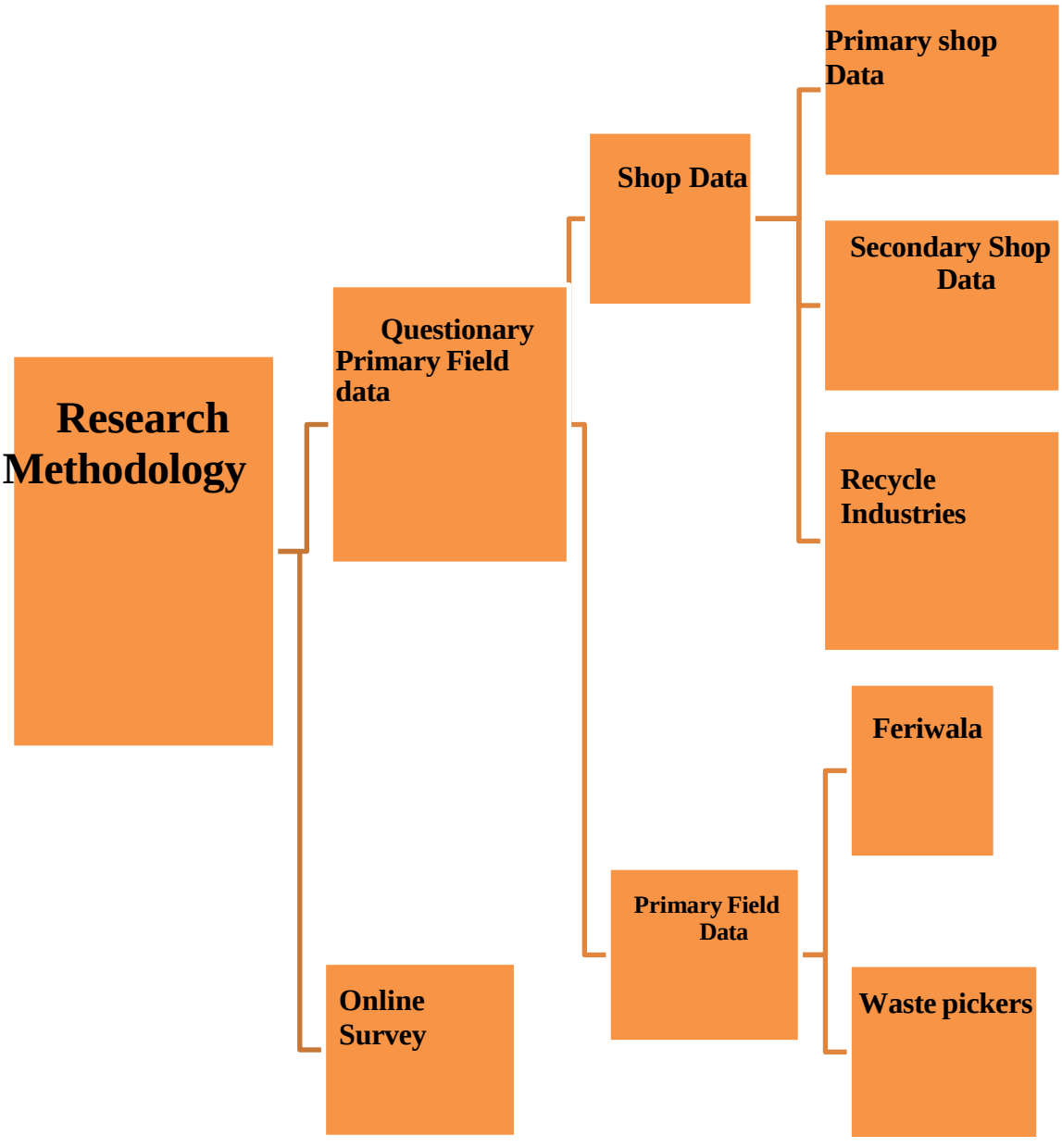


Figure 3:Methodology

3.4 Study Area Map

Figure 4:Study Area

CHAPTER IV
RESULT & DISCUSSION

4.1 Plastic Waste (Field Work)

Waste Collection Data

Table 2:Average amount collected plastic (kg/day) from primary collectors

Primary Collectors	Types			
Waste Pickers	**Soft Plastic**	**Selling price**	**Hard Plastic**	**Selling price**
1.	2.5	20	3.5	5
2.	2.5	20	4.5	8
3.	3.5	21	3.5	8
4.	2.5	19	3.5	9
5.	1.5	18	2.5	6
6.	3.5	22	4.5	7
7.	2.5	15	2.5	5
8.	5.5	20	2.5	5
9.	2.5	19	4.5	6
10.	3.5	18	3	7
11.	1.5	22	2.5	5
12.	2.5	15	3.5	10
13.	5.5	23	5.5	6
14.	1.5	19	2.5	8
15.	4.5	25	5.5	7
	Total = 45.5kg		**Total = 54kg**	
Feriwala	**Soft Plastic**	**Selling price**	**Hard Plastic**	**Selling price**
1.	4.5	25	2.5	5
2.	5.5	25	3.5	7
3.	4.5	35	4.5	6
4.	5.5	18	4.5	7
5.	4.5	17	3.5	5
6.	9.5	22	6.5	5
7.	6.5	20	9.5	7
8.	3.5	22	4.5	5
9.	5.5	30	2.5	8
10.	4.5	27	4.5	6
11.	4.5	25	5.5	7

12.	6.5	25	4.5	5
13.	5.5	18	3.5	6
14.	4.5	15	6.5	7
15.	9.5	22	2.5	9
	Total = 84.5kg		**Total = 75kg**	

Table 3:Average amount collected plastic (kg/day) from primary collectors.

Shop Location: Radio Colony	N. of Recycling Shop Type	Types of Plastic	
		Soft	Hard
Shop 1	Medium	17 kg/day	11 kg/day
Shop 2	Small	12 kg/day	6 kg/day
Shop 3	Small	20 kg/day	7 kg/day
Shop 4	Large	33 kg/day	14 kg/day
Shop 5	Medium	17 kg/day	11 kg/day
Shop 6	Small	10 kg/day	7 kg/day

N.B. Number of Recycling Shop Type (Large: More than 30kg), (Medium: 15-30kg), (Small: Less than 15kg)

Now, Total large shop 01, medium shop 02 & small shop 03

Shop Location: Baipail	N. of Recycling Shop Type	Types of Plastic	
		Soft	Hard
Shop 7	Large	26 kg/day	27 kg/day
Shop 8	Large	90 kg/day	55 kg/day
Shop 9	Large	65 kg/day	35 kg/day

N.B. Number of Recycling Shop Type (Large: More than 30kg), (Medium: 15-30kg), (Small: Less than 15kg)

Now, Total large shop 03, medium shop 00 & small shop 00

Shop Location: Raribari	N. of Recycling Shop Type	Types of Plastic	
		Soft	Hard
Shop 10	Medium	15 kg/day	10 kg/day
Shop 11	Large	22 kg/day	15 kg/day
Shop 12	Medium	12 kg/day	16 kg/day

N.B. Number of Recycling Shop Type (Large: More than 30kg), (Medium: 15-30kg), (Small: Less than 15kg)

Now, Total large shop 01, medium shop 02 & small shop 00

Shop Location: Jaleshwar	N. of Recycling Shop Type	Types of Plastic	
		Soft	Hard
Shop 13	Medium	22 kg/day	16 kg/day
Shop 14	Small	10 kg/day	8 kg/day
Shop 15	Small	12 kg/day	9 kg/day
Shop 16	Medium	20 kg/day	13 kg/day
Shop 17	Small	12 kg/day	10 kg/day

N.B. Number of Recycling Shop Type (Large: More than 30kg), (Medium: 15-30kg), (Small: Less than 15kg)

Now, Total large shop 00, medium shop 02 & small shop 03

Shop Location: Vatpara, Rajashon	N. of Recycling Shop Type	Types of Plastic	
		Soft	Hard
Shop 18	Small	10 kg/day	12 kg/day
Shop 19	Large	35 kg/day	15 kg/day
Shop 20	Medium	22 kg/day	18 kg/day
Shop 21	Medium	32 kg/day	15 kg/day
Shop 22	Large	30 kg/day	25 kg/day

N.B. Number of Recycling Shop Type (Large: More than 30kg), (Medium: 15-30kg), (Small: Less than 15kg)

Now, Total large shop 02, medium shop 02 & small shop 01

Shop Location: Kamal Garments Roads, Nama Bazar	N. of Recycling Shop Type	Types of Plastic	
		Soft	Hard
Shop 23	Small	22 kg/day	10 kg/day
Shop 24	Small	12 kg/day	9 kg/day
Shop 25	Medium	25 kg/day	30 kg/day
Shop 26	Small	12 kg/day	6 kg/day
Shop 27	Small	15 kg/day	9 kg/day
Shop 28	Medium	22 kg/day	15 kg/day
Shop 29	Large	32 kg/day	15 kg/day
Shop 30	Medium	13 kg/day	16 kg/day

N.B. Number of Recycling Shop Type (Large: More than 30kg), (Medium: 15-30kg), (Small: Less than 15kg)

Now, Total large shop 01, medium shop 03 & small shop 04

Total Soft Plastic Avg. Collection in 30 Shops = 697kg/day Total Hard Plastic Avg. Collection in 30 Shops = 465kg/day.

Table 4:Number of Plastic Recycling Shops

Recycling Shop Type		
Large	Medium	Small
Shop 4	Shop 1	Shop 2
Shop 7	Shop 5	Shop 3
Shop 8	Shop 10	Shop 6
Shop 9	Shop 12	Shop 14
Shop 11	Shop 13	Shop 15
Shop 19	Shop 16	Shop 17
Shop 22	Shop 20	Shop 18
Shop 29	Shop 21	Shop 23
	Shop 25	Shop 24
	Shop 28	Shop 26
	Shop 30	Shop 27

Table 5:Types of Recycling Shop

Shop Location	**Recycling Shop Type**			**Total Shop (Location)**
	Large	**Medium**	**Small**	
Radio Colony	01	02	03	6
Baipail	03	00	00	3
Raribari	01	02	00	3
Jaleshwar	00	02	03	5
Vatpara, Rajashon	02	02	01	5
Kamal Garments Roads, Nama Bazar	01	03	04	8
	Total : 8	**Total : 11**	**Total :11**	**= 30**

Table 6:Detailed information of waste recycling shops.

Shop	Way of waste collection	Activity after collection	Earning per day
1	Waste Pickers, Feriwala, House Keeper	Classification & selling	800
2	Waste Pickers, Feriwala, House Keeper	Classification & selling	600
3	Waste Pickers, Feriwala, House Keeper	Classification & selling	1000
4	Feriwala, House Keeper	Classification & selling	2000
5	Feriwala, House Keeper	Classification & selling	900
6	Feriwala, House Keeper	Classification & selling	1000
7	Waste Pickers, Feriwala, House Keeper	Classification & selling	2200
8	Waste Pickers, Feriwala	Classification & selling	5500
9	Waste Pickers, Feriwala	Classification & selling	2500
10	Feriwala, House Keeper	Classification & selling	800
11	Feriwala, House Keeper	Classification & selling	1000
12	Feriwala, House Keeper	Classification & selling	500
13	Waste Pickers, Feriwala	Classification & selling	600
14	Feriwala, House Keeper	Classification & selling	800
15	Feriwala, House Keeper	Classification & selling	1200
16	Waste Pickers, Feriwala	Classification & selling	1000
17	Feriwala, House Keeper	Classification & selling	600
18	Feriwala, House Keeper	Classification & selling	800
19	Waste Pickers, Feriwala	Classification & selling	1200
20	Feriwala, House Keeper	Classification & selling	500
21	Feriwala, House Keeper	Classification & selling	600
22	Waste Pickers, Feriwala	Classification & selling	800
23	Waste Pickers, Feriwala, House Keeper	Classification & selling	1000
24	Waste Pickers, Feriwala, House Keeper	Classification & selling	500
25	Waste Pickers, Feriwala, House Keeper	Classification & selling	600

26	Waste Pickers, Feriwala, House Keeper	Classification & selling	800
27	Waste Pickers, Feriwala, House Keeper	Classification & selling	3500
28	Waste Pickers, Feriwala, House Keeper	Classification & selling	2000
29	Waste Pickers, Feriwala, House Keeper	Classification & selling	2000
30	Waste Pickers, Feriwala, House Keeper	Classification & selling	3000
Total 40,300 BDT			

Table 7:Recyling Process Step

Step 1	Collection of plastic waste.
Step 2	Sorting and categorizing.
Step 3	Shredding and washing.
Step 4	Melting and pelletizing.
Step 5	Manufacturing new products.
Step 6	Distribution and consumption.
Step 7	End of life option

Figure 5: Fieldwork (Data collection) at Savar area

Figure 6:Waste Sorting and Categorizing

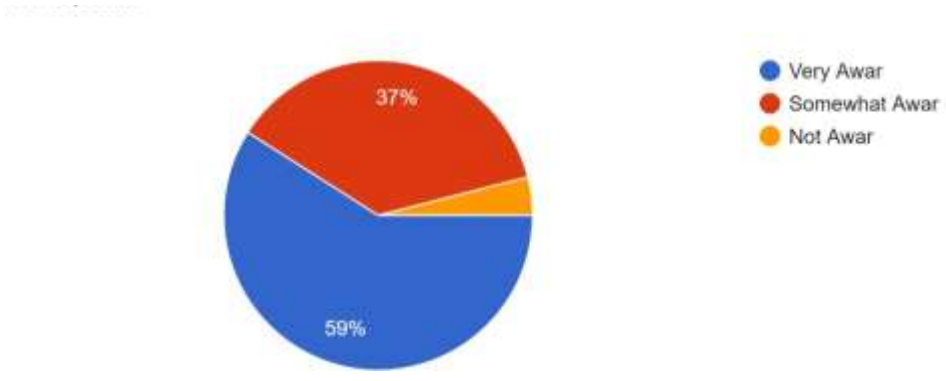
Figure 7:Recycle process in Savar Area

4.2 Online Survey

- **Online Survey**
  Data Collection & Data Collection Procedure

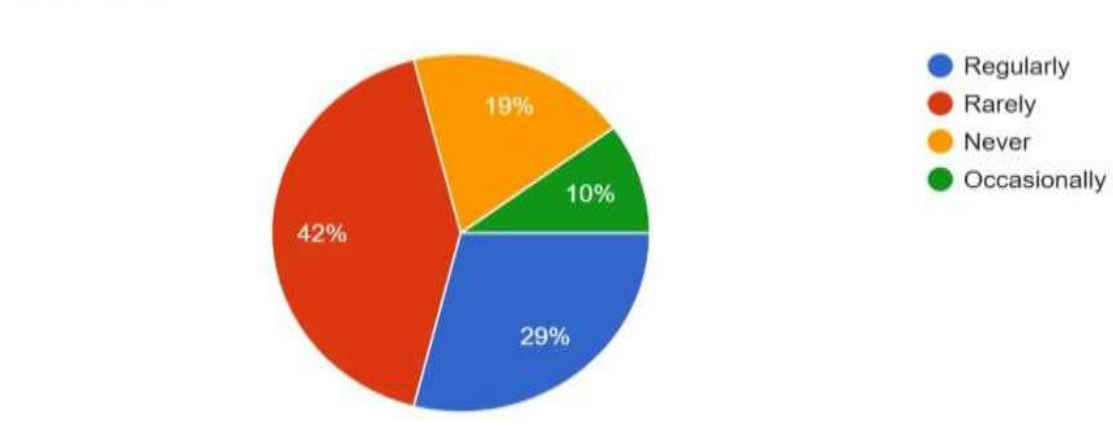
100 Participate

Public Awareness About Recycling



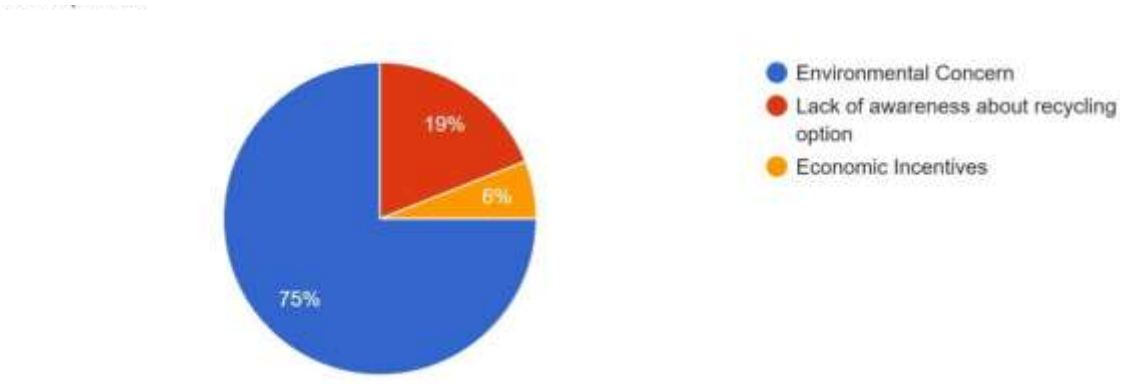
Here we see 59% of the people are aware about plastic waste recycling & this is good for our environment but we should try to make it more as on the other hand 37% people are not totally aware about this.

Frequent Public Pertinence In Recycling



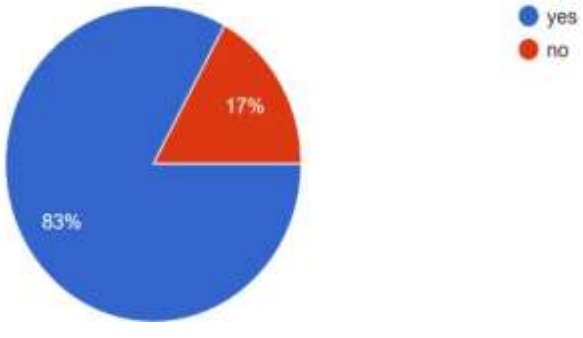
Here we see that 42% of people are rarely participating in recycling programmes which is not satisfactory as only 29% regularly participates. 10% octagonally and 19% rarely participates

Factors For Recycling Plastic Waste



Here the most important response is 75% which is about environment so we can say that a big amount of people are concern about environment

Effectiveness Of Current Waste Management In Bangladesh



Here the response about the waste management of our country Bangladesh where 36% people Doesn't think that current waste management system is effective where as 33% & 31% people thinks our system is very effective & somewhat effective respectively

4.3 Analysis

4.3.1 Plastic Waste Recycling In Bangladesh

Plastic waste is a major environmental concern in Bangladesh. Despite boasting a higher plastic recycling rate than many countries, Bangladesh still struggles with a significant portion of plastic ending up in landfills, waterways, and littering the environment. An efficient and responsible plastic waste recycling system is crucial for Bangladesh's sustainable development.

Figure 8:Plastic Waste

4.3.2 Existing Infrastructure and Initiatives Challenges and Opportunities

- **Informal Sector Challenges:** Informal recycling often lacks proper sorting, processing, and safety measures.
- **Limited Sorting and Processing Capacity:** Formal recycling facilities may not have the capacity to handle all collected plastic waste.
- **Low-grade Plastic Waste:** Recycling certain types of low-grade plastic is economically and technologically challenging.
- **Economic Opportunity:** A robust plastic recycling industry can create jobs and generate valuable recycled materials.
- **Environmental Benefit:** Effective plastic waste recycling reduces pollution and promotes a circular economy.

4.4 Potential Solutions

- **Formalization of Informal Sector**: Integrating the informal sector into the formal system through training and improved working conditions.
- **Investment in Sorting and Processing Facilities:** Upgrading technology and infrastructure to handle diverse plastic waste types.

- **Innovation in Low-grade Plastic Recycling:** Exploring new technologies and economic models for recycling low-value plastic.
- **Public Awareness Campaigns:** Educating the public on responsible plastic use and waste disposal.
- **Extended Producer Responsibility (EPR):** Enforcing the EPR policy to hold producers accountable for the end-of-life management of their plastic products.
- By addressing these challenges and implementing these solutions, Bangladesh can significantly improve its plastic waste recycling system, leading to a cleaner environment, a more sustainable economy, and a healthier population

CHAPTER V
CONCLUSION

This research investigates the urgent problem of plastic waste disposal in Savar, Bangladesh where rapid urbanization growth, industrial activity and population doubling have all aggravated plastic pollution. Based on both primary and secondary data, this study identifies some of the major problems involving in waste management system of Savar. It indicates the necessity to think about a sustainable waste management system as soon as possible. While some policies exist to help address these concerns, the lack of implementation as well as enforcement still impacts our environment and public health in negative ways

5.1 Summary of Findings

Key components of plastic waste management in Savar are identified through the study:

Plastic waste production is high: The rapid growth of Savar more uses population and industry together with fast production of plastic spills the generation toxicity. Such waste is frequently discarded in open dumping locations, or not appropriately dealt with, leading to increased contamination and threats to the natural environment and human wellbeing.

Dependence on informal waste management: Many informal waste collectors, or as they are often called, "waste pickers," contribute to plastic collection and recycling. But with no proper support and dangerous working environments, they fail to accomplish much because of health risks. By formalizing this sector it helps to increase plastic recovery rates and improve the livelihoods of workers.

Limited scale Recycle facilities: Plastic waste recycling at the larger scale is absent in Savar. Using advanced methods to set up recycling centers to divert more plastic waste from landfills through technology and funding.

Policy enforcement: Although many areas have policies for managing waste, in practice, policy enforcement is weak and public awareness is low. While these actions are commendable, enforcement of policy change and public education on the issues surrounding plastic waste is needed to create long-term impact.

Impact on Environment and Health: Plastic which is not disposed of properly leads to soil and water pollution, hampering agriculture and public health in Savar. Plastic burning, also emits toxic fumes in the air that may cause respiratory problems for people living nearby when inhaling it, the study revealed.

5.2 Suggestions on how they can improve

Considering all these things, the current research proposes the following strategies to improve plastic waste management in Savar:

Protect Nature By Creating Comprehensive Waste Collection Systems: Reducing plastic waste entering open dumps can be done by providing better coverage and efficiency of the waste collection. Such measures can be made more effective by adopting community-based waste collection programmes and giving incentives for the segregation of waste at source.

Formalize and Integrate the Informal Sector: Reinforcing the formal recycling sector through training, safety equipment provision, good working conditions and fair wages for informal waste collectors can improve recyclability and create more equitable waste management systems.

Create Recycling Infrastructure: More recycling options also require investment, ranging from facilities that take in recyclables to innovative technology, like plastic-to-fuel conversion.

Enhance Public Awareness and Involve the Community: Efforts such as public education campaigns targeted at creating awareness on the impacts of plastic waste and the benefits of good disposal practices are critical. Awareness is key; schools, local bodies, and NGOs can be instrumental in making people aware and take active participation.

Spread Environment-Friendly Alternatives: Production of pluralistic biodegradable or reusable alternatives to single-use plastic could be promoted through subsidies, incentives and regulatory action to make it less palatable and reduce demand at source.

5.3 Future directions and general approach

Further studies could explore community-led waste management models and evaluate the economic and environmental benefits of integrating informal sectors into official systems. Investigating new recycling technologies suitable for local contexts in Bangladesh could also support more efficient waste management.

This study shows that the effective management of plastic waste in Savar a joint effort of government agencies, private sector, NGOs andcommunity. Through these suggestions Savar will able to achieve cleaner environment and a sustainable place which can be imitation for other urban areas who are facing the same difficulties regarding waste management. Moving towards sustainable ways of handling waste is not just about mitigating immediate environmental and health costs but playing the long game by building resilience against future challenges that affect the broader well-being of communities in regions.

From The total survey and above estimation we can conclude:

Total plastic waste collected from primary collectors to 259kg per/day. These shops earning per day 40,300 BDT

Total types of Recycling Shops are 30. Including those shops are large 08, medium 11, small 11.

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