

## Impacts of Improper Waste Management on Marginalized Communities: A Study on Kanishail Slums in Sylhet City

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**ABSTRACT:** Improper waste management is a critical problem facing marginalized communities, especially the dwellers in slum areas in developing countries. This research focuses on environmental, social and health effects of improper management of waste in Kanishail slums of Sylhet City. In this study, a quantitative method was applied and respondents from the slum areas responded to structured questionnaires. Targets include population density, socio-economic issues, substandard hygiene structures and ill practices of waste disposal. The studies show that individuals occupying the slum areas have poor attitudes to the disposal of wastes; they practice open dumping and burning of wastes. It results in air, soil, water pollution as well as has negative impact on human health and they include respiratory diseases and skin diseases among others. Also these environmental challenges interfere with people's lives and increase their living standards. The study therefore underscore the need for intervention measure such as awareness creation on efficient waste collections by the urban municipalities, support for community based management of wastes, better support for recycling. There is also a need to invest in rallying support for awareness and in- formed health campaigns. This research advocates promotion of participation of the affected communities into sustainable waste management practices and into urban development plans for a fair environment and quality living. This paper advances the understanding of how improper waste management exacerbates to the social risks of slum dwellers by identifying specific ways in which enhanced waste management can better serve people in Sylhet City.

**KEYWORDS:** Improper waste management, Marginalized communities, Pollution, Environment

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### 1.0 INTRODUCTION

Improper waste management refers to the incorrect methods used to handle waste as well as improper waste disposal and treatment procedures create environmental threats and negative impacts on human health (Gutberlet,2018). Inadequate waste management practices create substantial environmental risks which cause pollution and habitat erosion and medical concerns through soil and water and air contamination. Environmental challenge has become one of the major worldwide threats, and garbage disposal is the most significant problem associated with the deterioration of the outer world and pollution of communities. Marginalized communities are most affected due to improper waste management systems, such that those in the developing countries are at a risk of being punished and suffering from health, financial and social impacts of environmental pollution (Gupta, Yadav & Kumar, 2015). The worst examples of these environmental justice issues can be observed in urban slums where density population, weak infrastructural provision and socioeconomic susceptibilities prevail.

Again, as most of the developing countries, Bangladesh has great challenges to tackle the problem of solid waste management efficiently. There is an increasing rate in environmental and public health problems for rapid urbanization, over population, inadequate finances, human and material resources in municipalities especially in the densely populated areas (Ali, Wang, Chaudry & Geng, 2017). These broader environmental management challenges are well illustrated by the Sylhet City Corporation area due to its diverse socioeconomic profile.

The Kanishail slums provide a good study of poor management of wastes poses lots of problems on vulnerable groups. In addition to direct contamination of their surrounding environment, these communities forms a closed loop whose members are negatively affected in their health, income generating opportunities and wellbeing. Waste disposal practice does have correlation with pollution of the environment, and social vulnerability therefore requires detailed scientific analysis.

This research seeks to provide a sequential analysis of the environmental, social, health impacts of poor waste disposal in the Kanishail slum zones. Using quantitative approach, the study aims at describing the present state of the waste management systems as well as their effects on the environment, on the health of slum dwellers, discover the socio-economical aspects of waste-related environmental problems, and design the precise recommendations concerning the improvement of the waste

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management systems. The significance of this study extends beyond academic discourse. Such findings emanating from this work can be useful in policy and program development, urban design and other relevant planner approaches, and application of community-centered environmental conservation. Besides, it enriches the regional and global discussions on the complex issue of environmental justice and sustainable development. The following sections of this paper will describe the research method, provide data analysis, and advance recommendations for enhancing waste disposal in the urban slum environments.

### **2.0 RATIONALE OF THE STUDY**

Environmental degradation possesses various forms and every forms are interrelated pervasively. Improper waste management is a form of deterioration in the sense that it leads to enormous loss of human being as well as surroundings. Improper waste management poses significant environmental and public health risks, particularly in marginalized communities. These communities often bear a disproportionate burden of waste mismanagement due to factors such as socioeconomic status, lack of consciousness, and systemic inequalities. In the area of Sylhet City Corporation, due to lack of proper disposal, unpleasant garbage smell, water logging and contamination ,long term and cumulative health problem faced by people. As we want to focus on marginalized community, the intense of the problem is awful. By conducting this study, we aim to shed flame on the earmarked challenges faced by vulnerable populations in managing waste, understand the direct and indirect impacts on their health and well-being, and identify potential solutions to mitigate these disparities. Ultimately, this study seeks to advocate for more equitable waste management system and practices that prioritize the rights and needs of all communities, regardless of their socio-economic status.

### **3.0 OBJECTIVES OF THE STUDY**

The broad objective of the study is to analyze the impacts of improper waste management on the health, livelihood, and overall well-being of marginalized communities in the Kanishail slums of Sylhet City. To achieve this broad objective, there are some specific objectives which are as follows–

- 3.1 To investigate the sources of improper waste management affecting marginalized communities.
- 3.2 To assess the environmental degradation caused by improper waste disposal in slums.
- 3.3. To evaluate the socioeconomic effects of waste management on the livelihoods and daily lives.

### **4.0 LITERATURE REVIEW**

The improper waste management creates environmental degradation together with an increased societal problems that forces vulnerable people to bear the most severe consequences of pollution and ecological abuse (Akhter,2023). Environmental degradation is the process of destroying natural environment by external factors resulting in declining environmental quality leading to depletion of resources (Ahmed and Rahman, 2019). Although this process can occur from natural occurrences, but in most cases it is due to anthropogenic factors; pollution, deforestation, overfishing and urbanism. The environmental deterioration through depletion of resources such as air, water and soil, the destruction of ecosystems, habitat loss, etc., and all this leads to adverse impacts on human life and other living organisms. Inadequate waste disposal is an important source of pollution that leads to environmental degradation (Gupta,2015). Individuals living in over-populated area can be at increased risk of respiratory diseases, infections and chronic conditions because they are closer to the polluted environments (Brulle & Pellow, 2006).

Waste management is accumulation, deportation , processing or disposal of waste materials. It is a comprehensive term covering all aspects of waste management, such as handling solid waste from its genesis through to waste disposal (Rahman M, 2019). Bangladesh is an overpopulated country and Industrial zones are growing day by day. The economic resources are not equally distributed in Bangladesh. The natural disasters and the pollution, poor people have to encounter with that (Akhter,2023). The disproportionate burden of environmental hazards borne by disenfranchised groups, which is frequently driven by economic and political factors (Alam, 2018).

Rapid urbanization has increased the environmental harm and health risks from improper waste disposal in Indian peri-urban regions. A research demonstrates how sustainable practices help toward achieving Sustainable Development Goals (SDGs) (Sharma , 2024).

Improper disposal practice where wastes not being disposed through proper means but e.g open dumping and unmanaged landfilling, may cause the leaching of toxic chemicals as well as heavy metals to soil and groundwater leading these vital resources into contamination (Brown,2016). Burning trash without proper pollution control releases toxic chemical compounds and greenhouse gases, worsening air pollution and climate change. Plastic waste, frequently handled ineffectively, poisons the seas and land natural surroundings, hurting untamed life and interrupting nourishment chains. In addition, poor recycling and composting practices increase landfilling that causes land degradation with loss of biodiversity (Orolanpisola, 2024). All of these factors combine to reduce environmental quality, and many impact human and wildlife health.

Improper waste management and pollution has become one of the major environmental and public health problem around the world. These challenges are more intense on poor people of cities, where deprived sections of society usually suffer the most

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(Ali,2017). Health problems from pollution in informal settlements become worse through lack of basic services (Ahmmad, 2018) in South Asia. Globally, urbanisation and industrial next to each other has caused the augmented production of waste. More than 2 billion tons of municipal solid waste are created every year in cities, this number is projected to reach 3.4 billion tons by 2050! Unscientific waste disposal generates enormous environmental pollution like air, soil water pollution affecting human health and all other living organisms ( Chowdhury & Amin, 2005).

The issue of waste management is made worse in every developing nations due to limited resources, insufficient infrastructure and fast urbanisation. Informal settlements often have little to no waste collection and disposal. As a result, the people are compelled to have litter in open areas that causes excruciating environmental deterioration and health hazards ( Chowdhury & Amin, 2005). Dhaka is one of a number cities in the Bangladesh, where a lot of pollution occurs, which can cause a serious issue for health (Ahmmad,2018).

Another study examines Dhaka while showing how poor waste management creates health troubles. The current waste disposal failures produce two major consequences that intensify both disease outbreaks and diminished other prospects. The study proves that effective waste management systems need to be implemented to enhance health outcomes together with poverty alleviation by engaging communities and recovering resources (Akhter,2023).

Effects of poor waste management at communities. For example, the people living in Delhi India were reported to get serious health problems as a result of being exposed to waste and pollutants as well as high rates of waterborne diseases among residents which are next door to the dumpsites but land fields sites based on Nairobi Kenya (Alam,2018) . Although effects on physical health are well established, the mental health ramifications have received increased (but relatively less) focus. suggest that the increased stress and anxiety caused by living in polluted environments leads residents to be less healthy overall (Evans and Kantrowitz, 2002). Their exposure to environmental hazards is exacerbated by their vulnerability. affordable waste disposal services are inaccessible to households, leave the community with little choice but to pursue informal and often pernicious waste management alternatives (Ali,2017). The impacts of environmental degradation will shake up the whole world, creating wide-spread and deep-seating changes. Rising sea levels will threaten infrastructure and livelihoods of coastal communities (Ali S.M.,2015).

The global study exposes how poor waste disposal practices result in various environmental problems that create pollution of air, land, and water bodies (Ferronato,2021). A research demonstrates that circular economy techniques like ecobricks and upcycling can help reduce plastic pollution (Mihai ,2021).

The inequalities between the developed world and the developing world will probably expand too, as countries that are poorer suffer disproportionately from environmental scarring — subsequently giving rise to a greater potential for conflict or migration. To tackle these challenges, it is imperative that we globally come together to adopt sustainable approaches and protect against the further damage (Ali S.M.,2015). It enables to mitigate health risks, minimise environmental degradation and create new economic opportunities in recycling and waste-to-energy. Waste management together with mutual collaboration increases community sense of pride and resilience, thus improving well-being and sustainable development (Alam, 2018).

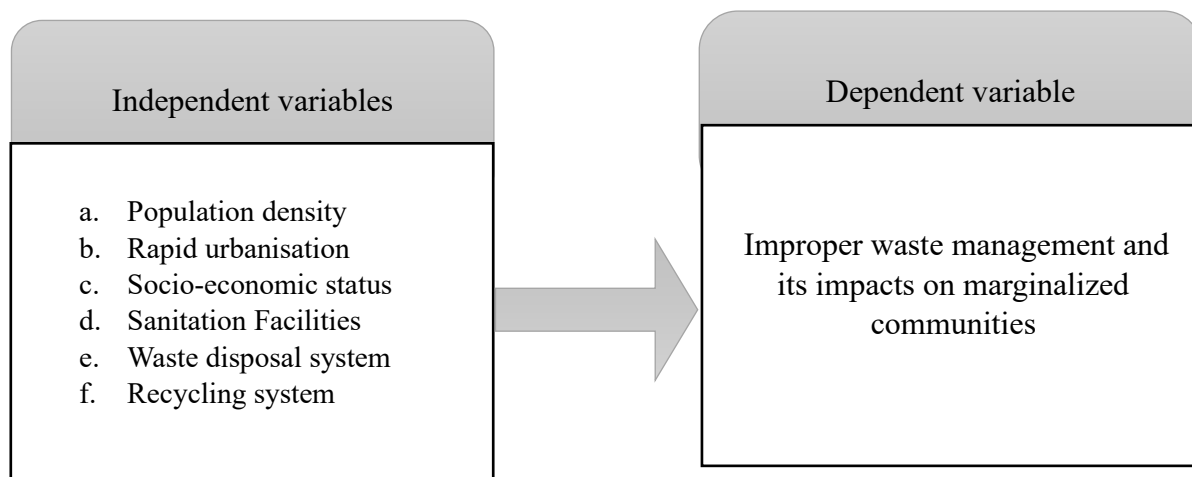
### **5.0 KNOWLEDGE GAP**

As an emerging country, Bangladesh faces challenges from overpopulation and national development while its population, especially slum dwellers, exist in vulnerable conditions and struggle to meet the basic needs. The previous studies highlight the environmental impacts of improper waste management but they overlook to explore the immediate consequences it imposes on disadvantaged populations' health, livelihoods and overall well-being. Our research aim to examine the impacts of improper waste management on these communities by exploring how poor waste disposal increases health risks, leads to work loss and deepens poverty cycles. In Bangladesh, the substantial population residing in poor living conditions, improving waste management can enhance their well-being and contribute to foster national progress. By addressing the gap, our study contributes fresh understanding regarding waste management and socio-economic vulnerability despite previous studies focusing limited attention on this topic.

### **6.0 CONCEPTUAL FRAMEWORK**

This conceptual framework is presented based upon the relevant literatures which have established a relationship between the impact on quality of socio-economic life of slum-dwellers and some factors which are influencing this conditions.

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### 7.0 RESEARCH METHODOLOGY

#### 7.1 Research Type

Explanatory research has been used to identify the disproportionate impacts of improper waste management and pollution on marginalized communities at Kanishail slums. Here the study tried to get information about the impact of improper waste management and how marginalized communities suffer by them. And it also tried to examine the existing relationships between the variables.

#### 7.2 Research Approach

This study has used quantitative method. Quantitative data, gathered through surveys, will offer numerical insights. So, quantitative approach has been followed in this study to achieve the objectives.

#### 7.3 Data Sources

The research uses a combination of primary and secondary resources for data analysis. Primary Data materials have been gathered from participants using a questionnaire. Primary data has been collected from the Slum-dwellers of Kanishail at Akhalia in Sylhet city. Secondary data have been collected from published articles, journal, e-books, newspapers and different reports organizations which are related to the study to analyze and compare the findings of the study.

#### 7.4 Study Area

It has been selected slums of Kanishail which is situated at Akhalia in Sylhet city as area of study. The data has been collected from the slum-dwellers of Kanishail.

#### 7.5 Population, Sample, and Sampling

The population of this study is all the slum-dwellers of the Kanishail area of Sylhet City Corporation. In this study, we have used the Cluster sampling method to select the sample of the study. The estimated population size is 150. In this study, Yamane's sampling formula was employed to determine an appropriate sample size. The formula was applied as follows:

$$n = \frac{N}{1 + N(e)^2}$$

The population size ( $N = 150$ ) and the margin of error ( $e = 0.1$ ), the calculation yielded a sample size of approximately 60 individuals. We divided the population into 3 clusters based on their location, selected 2 clusters randomly and collected data from 30 individuals from each selected cluster.

#### 7.6 Tools and Techniques of Data Collection

This study has gathered its information via structured questionnaires which included close-ended questions for gathering information and collected data through face-to-face. These techniques allow for a systematic gathering of information from slum-dwellers.

#### 7.7 Data analysis

Collected data has been analyzed through descriptive statistical analysis and correlation has been established by using SPSS program. The findings of the study have been presented on the bar and pie chart.

#### 7.8 Limitations of the study

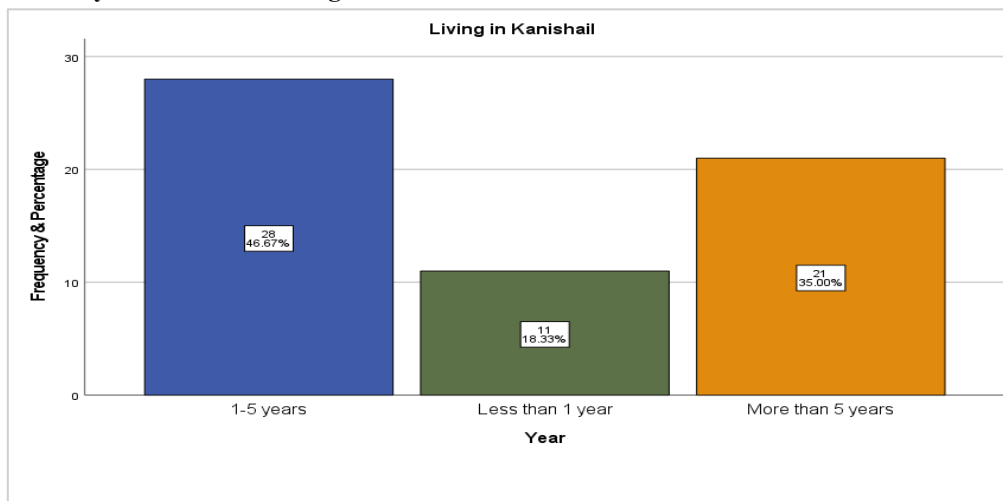
It has selected the sample from only one area that it is Kanishail. Only the few slum-dwellers of Kanishail is not able to represent all marginalized communities. So the selected respondents may not represent the whole population of the study.

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### 8.0 DATA ANALYSIS

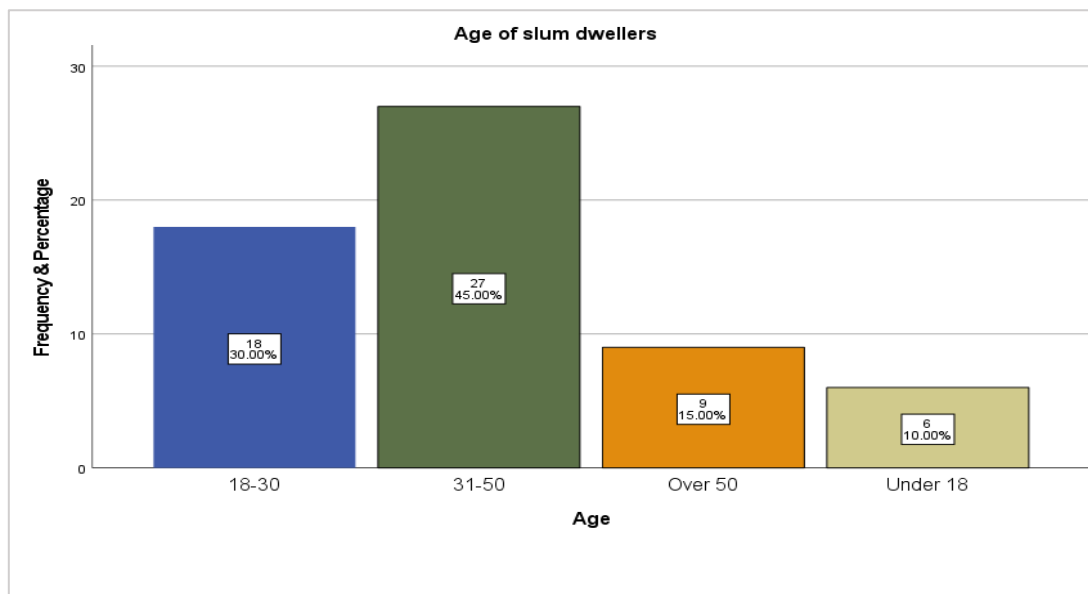
All the data have been collected from sample respondents (Kanishail slum dwellers) by structured questionnaire. Then these data visualize in particular charts and tables below-

#### 8.1 Duration of Residency Distribution Among Kanishail Slum Dwellers



In the bar chart about 46.67% residents indicate 1-5 years of residence at Kanishail slums while approximately 35% stay for longer than five years and approximately 18.33% stay less than one year, combining to create a mostly stable resident population.

#### 8.2 Age Distribution of Slum Residents



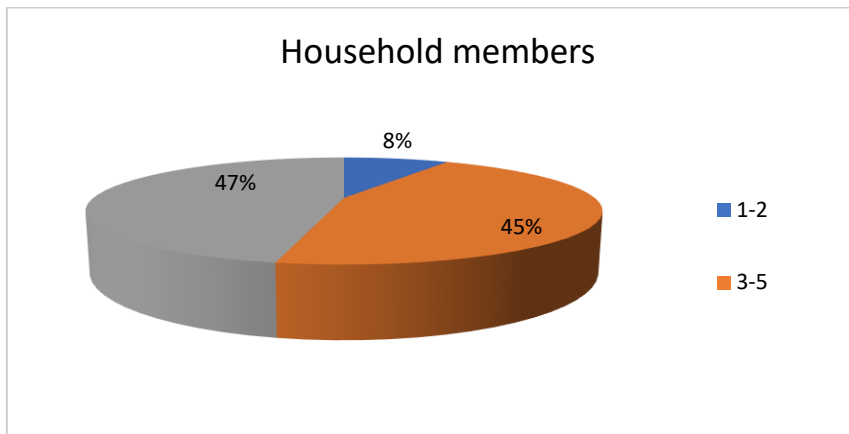
The Age distribution chart shows 45% of Kanishail slum residents belong to the 31-50 year age group while (18-30) constitutes 30% of the population. The population of over 50-year-olds in Kanishail slum stands at 15% while under 18-year-olds make up 10% of the residents.

#### 8.3 Gender Distribution

Gender	Frequency	Percentage
Male	24	40.0%
Female	34	56.7%
Other	2	3.3%
Total	60	100.0%

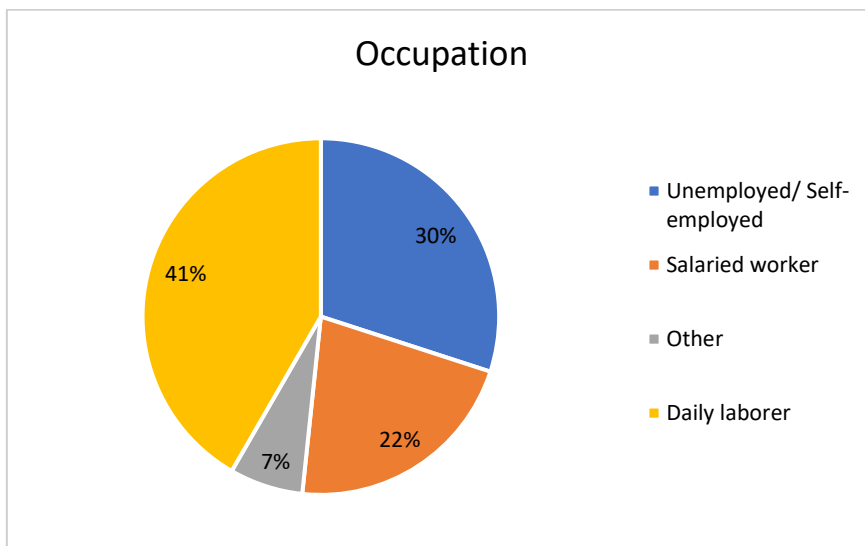
The table illustrates female students outnumber males at 56.7% with 40% male student enrollment and 3.3% enrollment of unspecified others.

8.4 Distribution of Household Size



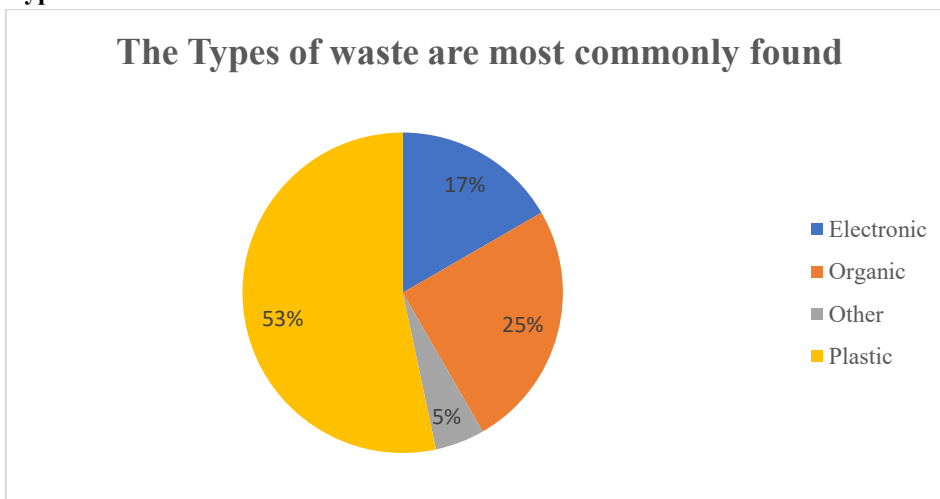
The majority of households (47%) have over five members while homes with between three and five members make up another substantial part (45%). The population studied contains mostly household groups comprising more than 1 to 2 members since this demographic type represents just 8%.

8.5 Occupational Distribution



The most common occupation among community members consists of daily laborers who make up 41% of the total workforce while self-employment and unemployment create another 30% of the workforce. 22% of the population works as salaried employees but 7% falls under categories classified as 'Other' workforce segments. This points to substantial informal employment in the local community.

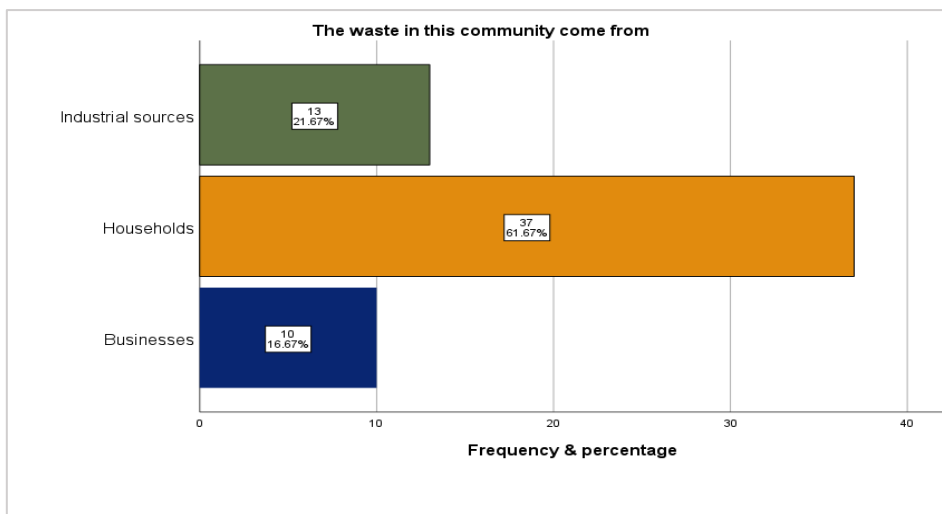
8.6 Common Waste Types



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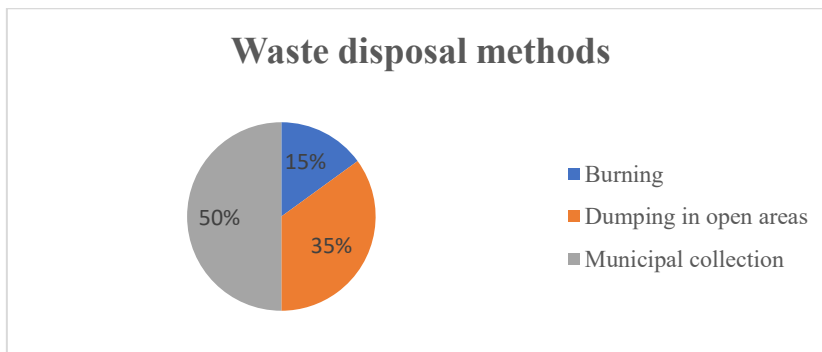
The pie chart shows that plastic waste generates 53% of total waste composition after organic waste at 25%. The study area faces an important plastic pollution issue because electronic waste comprises 17% of total waste and other waste types represent 5%.

### 8.7 Sources of Waste Generation



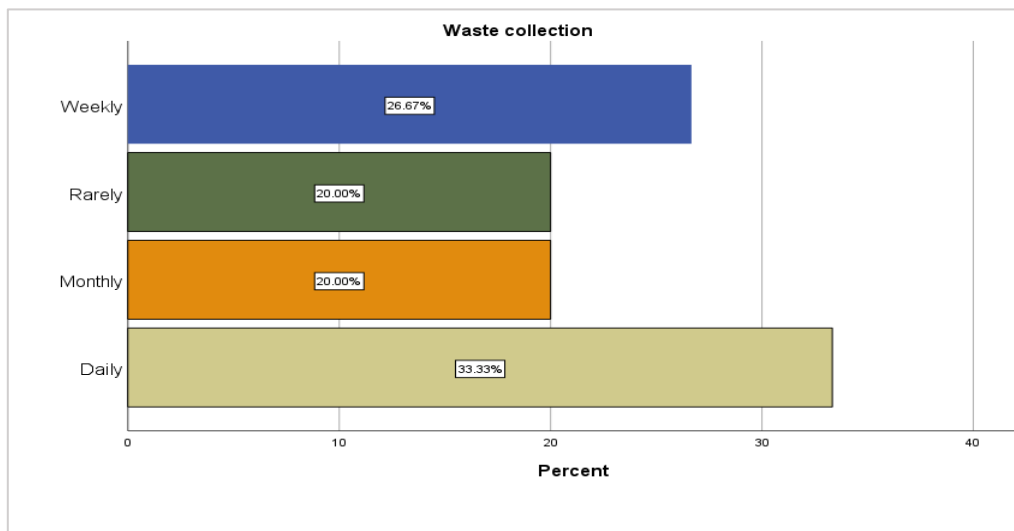
The bar chart displays that homes generate the most waste at 61.67% while industries produce 21.67% and commercial entities contribute 16.67%. Household areas generate the highest amount of waste based on this distribution pattern while pointing to the necessity of specific waste management strategies for residential zones.

### 8.8 Waste Disposal Methods



The chart illustrates that municipal collection serves as the waste management method for 50% of residents and open dumping occurs in 35% of cases. Waste burning is limited to 15%. Insufficient proper environmental waste management systems create severe environmental dangers.

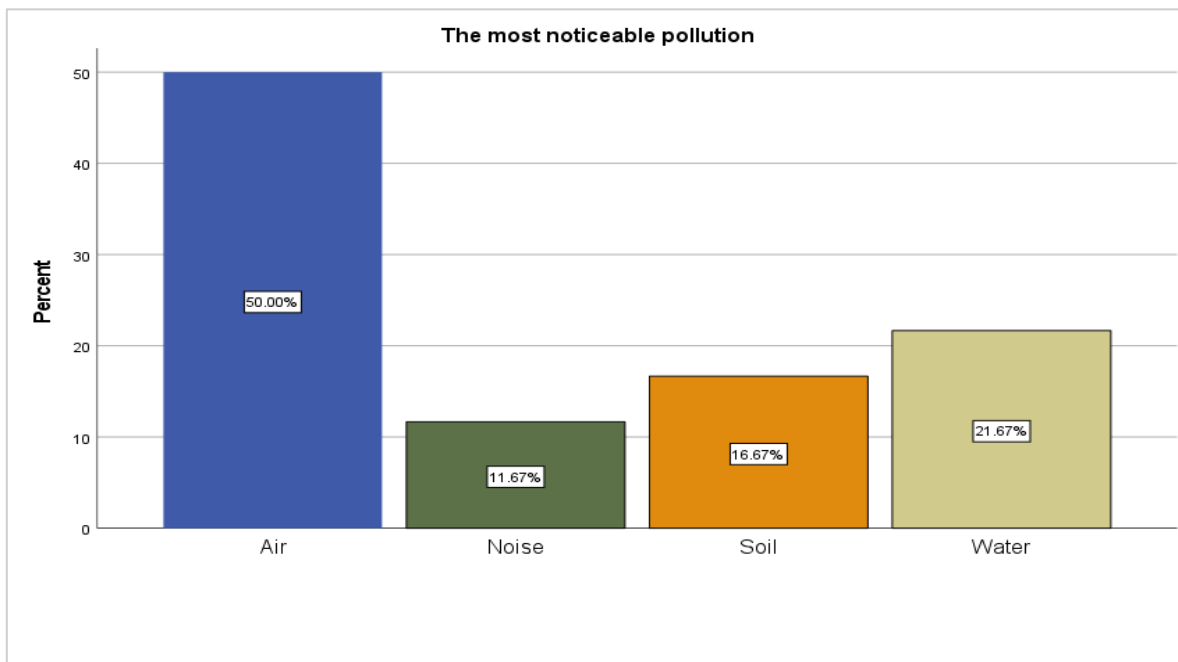
### 8.9 Frequency of Waste Collection Services



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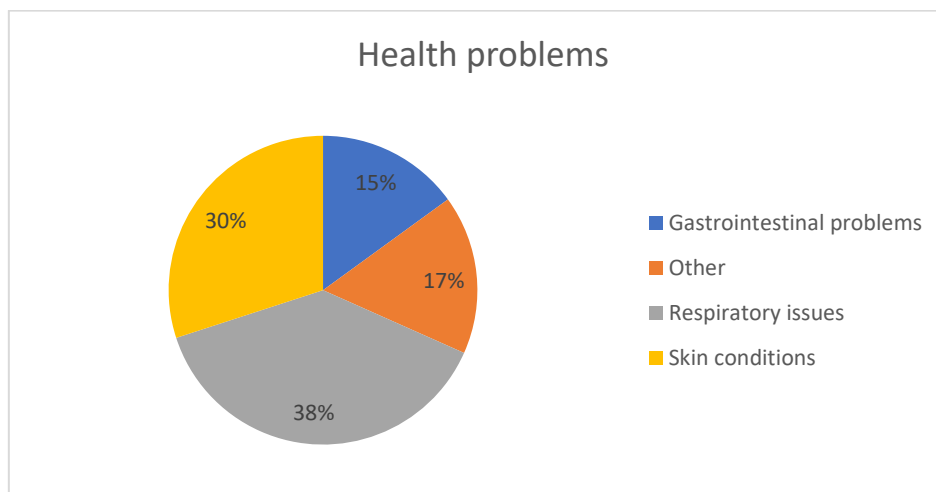
Daily waste collection services constitute a third of the population but weekly collections reach 26.67% and monthly and rare services rate 20% each. The regular waste collection services do not prevent areas from accumulating waste leading to community hygiene problems.

### 8.10 Types of Most Noticeable Pollution



The bar chart demonstrates air pollution stands as the leading dilemma according to 50% of people in Kanishail slum with water pollution ranking second at 21.67% and soil and noise pollution each affecting 16.67% and 11.67% of the population respectively. Waste fires intensify air contamination to become a leading environmental problem throughout this location.

### 8.11 Health Issues



The pie chart shows due to pollution collectively affected 38% of respondents along with respiratory issues (30%) and gastrointestinal problems (15%). The remainder 17% reported different health issues.

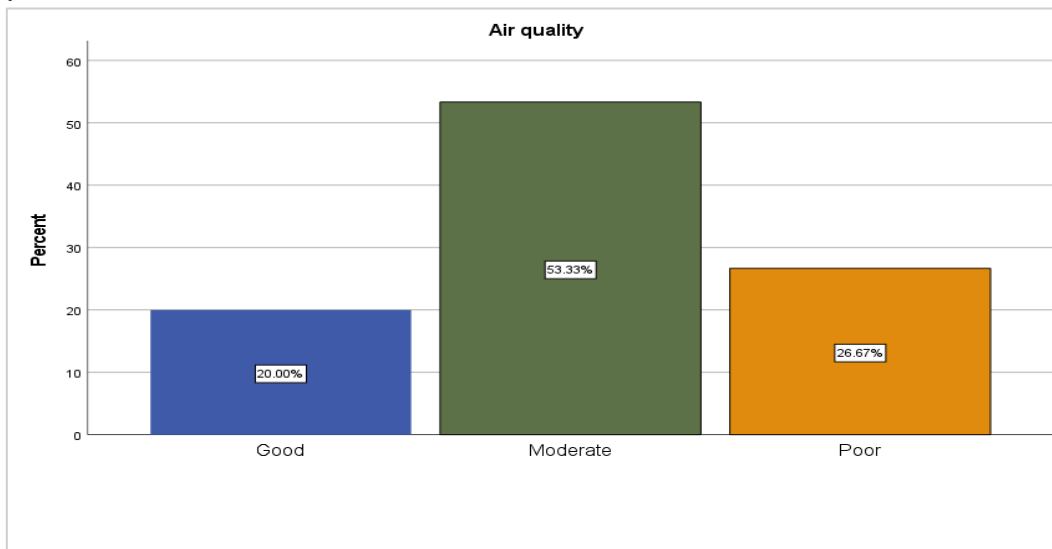
### 8.12 Member of household suffered from illnesses due to waste-related pollution

Responses	Frequency	Percentage
Yes	43	71.7%
No	17	28.3%
Total	60	100.0%

The table reveals that 71.7 percent of households experienced illness caused by waste-related pollution even though 28.3 percent of households did not report any health issues due to this type of pollution.

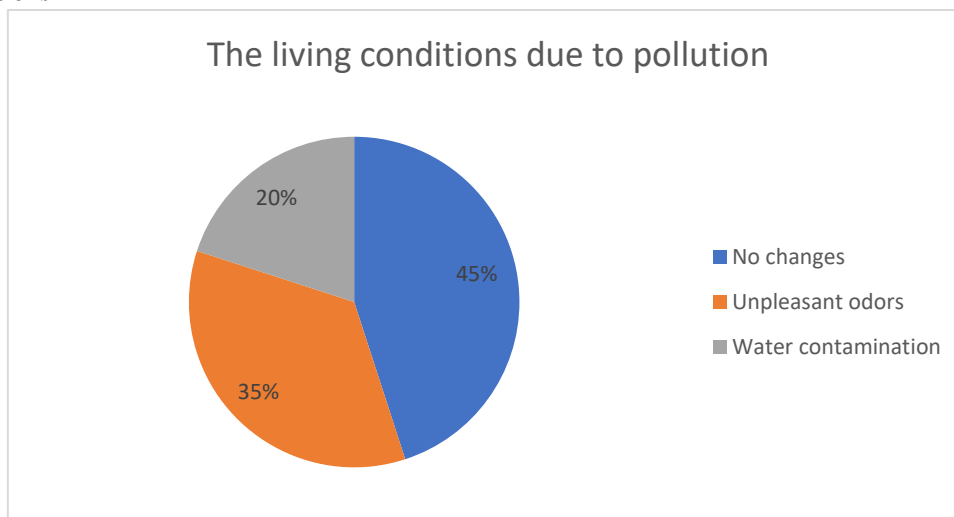
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### 8.13 Air Quality



Research participants identified moderate air quality levels to be prevailing across the majority of the surveyed area. Only 26.67% state about the bad condition of air. A minority of 20% among respondents pointed out that air quality in their area remained favorable.

### 8.14 Living Conditions



According to the pie chart 35% of people experienced detrimental effects on their living conditions due to odor problems. Living conditions suffer from water contamination among 20% of the surveyed population. 45% of respondents reported no alterations in their living conditions since they remain unconcerned about their environmental conditions.

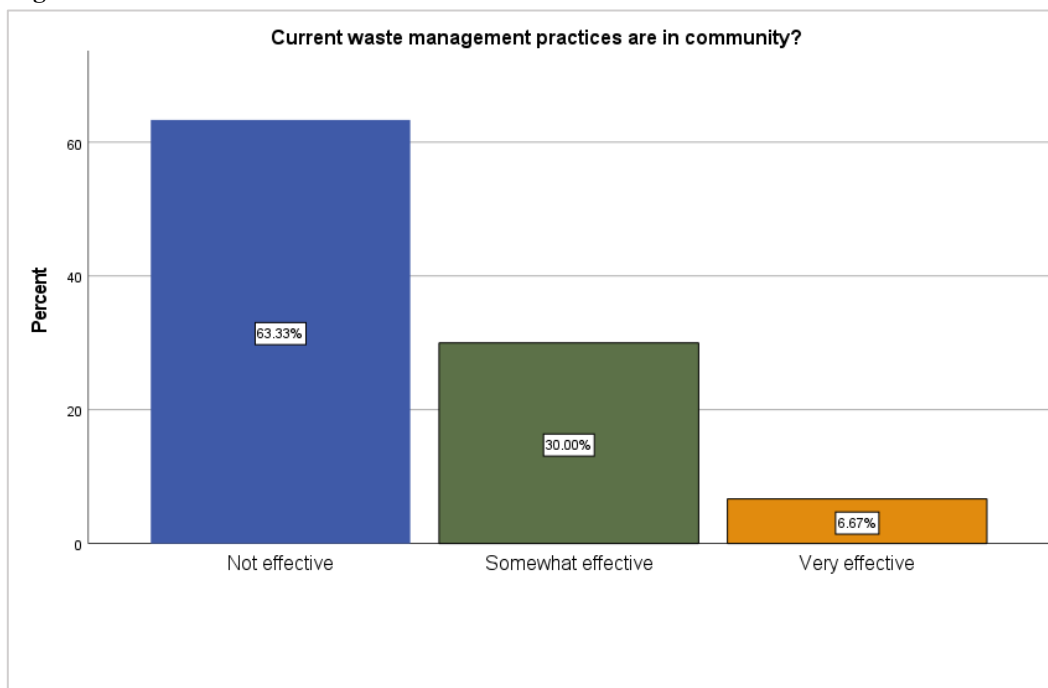
### 8.15

Responses	Frequency	Percentage
Yes	31	51.7%
No	29	48.3%
Total	60	100.0%

### Impacts of waste and pollution on employment or income

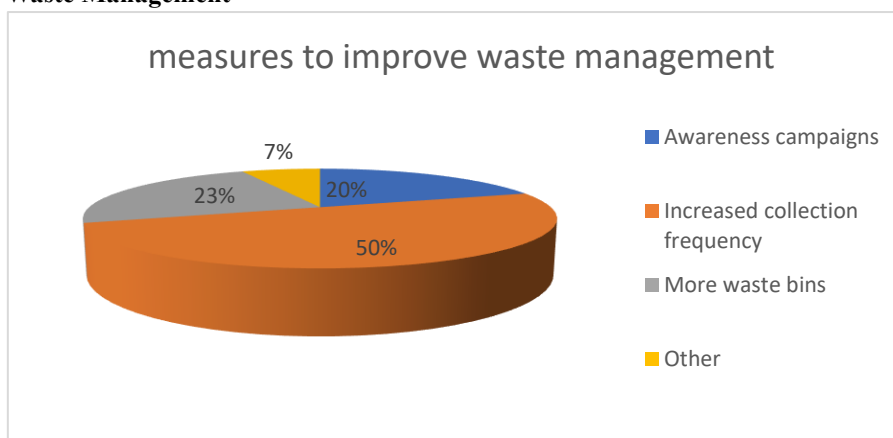
The collected data reflects identical numbers because 51.7% of participants detected waste and pollution affecting their employment/income status but 48.3% experienced no such effects.

8.16 Waste Management Practice



The marginal communities remain out of reach from the waste disposal efforts taken by local official bodies. Most practices for waste management do not achieve their intended results. A large proportion of 63.33% survey participants reported no visible operational waste management actions within their community.

8.17 Improvement in Waste Management



The pie chart shows the majority of respondents specified that the frequency of waste collection and waste bins need better quality while 20% of respondents highlighted the significance of garbage management campaigns.

8.18 Support or information from local authorities about waste management

Local authorities provided waste management support to 23.3% of respondents according to the table although most recipients did not receive any information 76.7%.

Responses	Frequency	Percentage
Yes	14	23.3%
No	46	76.7%
Total	60	100.0%

Responses	Frequency	Percentage
Yes	16	26.7%
No	44	73.3%
Total	60	100.0%

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### 8. 19 Community initiatives for managing waste in slum

The table illustrates that community involvement in waste management programs remains very low since 26.7% participate in such activities but 73.3% demonstrate no involvement at all.

## 9.0 DISCUSSION

This research finds the impacts of improper waste management on marginalized communities in the Kanishail slums of Sylhet City through their health, economic situation and both overall well-being. Research results prove that inadequate waste disposal creates severe environmental social economic stress for such communities.

**Source of Improper Waste in Marginalized communities:** The first specific objective of the study is to investigate the sources of improper waste management affecting marginalized communities. This study investigates waste from household represents 61.67% of the total waste management problem while waste from industry ranks second at 14.67% in causing mismanagement. The extensive practice of open dumping at 35% along with burning waste at 15% makes environmental contamination worse.

**Environmental Degradation Due to Improper Disposal of Waste:** The second one is about assessing the environmental degradation lead to improper disposal of waste in slums. Air pollution stood as the most apparent environmental issue according to 50% of participants whereas water pollution followed at 21.67% with soil pollution rated at 16.67%. Air quality suffers from waste burning and open dumping and a large percentage of 26.67% rated it as poor according to respondents. Once such events create health problems. The majority of health issues linked to waste-related pollution consisted of respiratory diseases at 30% and gastrointestinal problems at 15%. The latest survey shows that 71.7% of families present one or more patients who have illnesses because of pollution.

**Socioeconomic Effects:** The last specific objective is evaluating the socioeconomic effects of waste management on the livelihoods and daily lives. The issue of improper waste management restricts work opportunities together with income prospects for a majority 51.7% of those studied. The lack of clean environments alongside poor hygiene standards impairs the workers' efficiency by restricting their productivity.

**Relevance to Conceptual Framework:** The conceptual framework of the study identifies population density together with rapid urbanization and socio-economic status and waste disposal practices as main independent factors leading to improper waste management. Data analysis demonstrates this conceptual model because these elements determine both the social situation and environmental quality of people living in slum areas.

**Reasons of Improper Waste Management:** Various factors behind the improper waste management problems present in Kanishail slum. First of all lack of awareness and community engagement. A survey found that fewer than thirty percent of the participants took part in community waste management activities. The lack of awareness among these residents leads them to practice careless waste disposal practices that involve open dumping along with burning. Moreover, inefficient municipal waste collection. The municipal authorities manage 50% of waste collection while their inconsistent servicing schedule results in waste accumulation. The inadequate infrastructure together with limited financial resources intensifies the situation. Numerous inhabitants practice informal waste elimination through private waste collection fees that are too costly for them. The financial problems coupled with joblessness prevent many people from acquiring suitable waste disposal options. Furthermore, systemic neglect by local authorities. Survey participants indicated that local authorities failed to provide waste management information or support to the general population as 76.7% reported no contact with them. The absence of institutional participation in slum areas prevents those affected residents from finding suitable solutions to their problems. Lastly, inadequate recycling infrastructure. Sanitation systems fail to control plastic waste resulting in 53% of all waste since they primarily burn or improperly dispose the material rather than recycle it.

**Overall Impacts of Improper Waste Management on Marginalized Communities:** This research has demonstrated that improper waste management within poor communities generates extra waste problems throughout those locations. Most significant impacts on health. Environmental pollution presents health hazards to residents who experience several respiratory diseases and skin disorders and contamination-related water-related health risks. The faulty waste management systems resulted in diminished quality of living for all those who resided within these areas. The quality of daily household conditions deteriorates each day because residents face offensive smells lasting multiple years and water pollution rates reaching 35% while water contamination occurs at 20%. Financial problems emerge when waste management methods remain improper. The combination of pollution disorders produces below-average performance in the work environment among staff members while environmental deterioration stops workers from establishing vending businesses on streets. In addition, it creates environmental injustice. Residents from the white community who reside in slum areas receive the worst impact of pollution despite creating little proposition of overall waste produced. The particular situation has been formed through necessary confluences between social differences in urban planning and unequal resource distribution.

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From the above research, it is clear that living standards of vulnerable groups are affected by an interaction between population density, economic status, sanitation amenities, waste disposal services, and recycling structures and therefore, there is the need for an effective environmental justice and urban planning that focuses on the needs of vulnerable groups of people.

While this research offers important insights about the impacts of improper waste management in Kanishail slums, additional studies should study waste management problems in other Bangladesh slum regions for developing nationwide policy recommendations.

### 10.0 RECOMMENDATIONS

**Enhance Municipal Waste Collection Infrastructure:** Local authorities should ensure they put in place an effective and efficient Daily waste collection service in all the areas that makeup Kanishail slums to ensure that there covered fully each day.

**Implement Community-Based Waste Management Programs:** Appoint a sound structure for community waste management committees that select the people coming from the communities to be in charge of waste management strategies (Akhter,2023).

**Develop Comprehensive Recycling Initiatives:** Contracts improving cooperation with the recycling companies and other environmental organizations to support the works with the necessary technical assistance and demand for recyclable materials. Establish waste to resource depots (Gupta,2015).

**Improve Health and Environmental Monitoring Systems:** Establish (recognised by the community) standard operating procedures for detecting and reporting on health problems and other environmental issues in relation to waste (Mihai,2021)

**Establish Policy Framework for Environmental Justice:** Design general policies that will entrench fair provision of waste management services and environmental protection on the vulnerable groups (Gupta,2015).

### 11.0 ADDITIONAL SUGGESTIONS OF RESPONDENTS

Some of respondents have suggested a number of initiatives for clean and proper waste management system in their area. They response in their local language. So, it has been translated in academic language for the study purpose. They are-

**Addressing Child Labor in Waste Collection :** The majority of garbage collection workers are underage children. Elimination of this practice must occur under the new government rules. The situation requires multiple policies to bring about improvement as well as strict bans on plastic use throughout specific regions. The established measures will decrease child labor utilization as they promote environmental cleanliness.

**Regulating Waste Collection Fees :** Certain waste collection group set unreasonable price costs for their services. The local government needs to take strong measures against these groups to establish fair payment systems and deliver superior waste management capabilities for its communities.

**Improving Waste Disposal Practices :** Residents should find unsuitable locations outside their homes for waste disposal while implementing daily waste collection services. This plan aims to stop illicit waste dumping close to homes and create safer polluted-free living areas.

**Ensuring Clean Water and Sanitation :** Both insufficient water supply and sanitation deficiencies create health risks which damage the environment through polluted riverbanks. The situation presents a complete connection between poor waste disposal systems found in slum districts. The combination of clean water supply with sanitary toilet construction and riverbank upkeep acts as a solution to prevent these problems.

**Strengthening Authorities and Funding for Effective Waste Management:** Serious health hazards and environmental problems occur because Kanishail slum experiences poor waste collection from both insufficient supervision and funding shortages. The problem intensifies due to inadequate planning along with inexperienced management practices. Sustainable waste management requires better municipal performance combined with increased governmental support together with NGO collaboration.

### 12.0 CONCLUSION

Incompatible waste management practices contribute to environmental deterioration because multiple convergent elements simultaneously produce this result. This research highlights the severe impacts of improper waste management on marginalized communities in Kanishail slums of Sylhet city, particularly through adverse environmental, health-related, and social economic consequences. Findings reveal that household waste amounts to the biggest portion of discarded materials in which open dumping and waste burning practices generate substantial pollution. Contaminated air and water sources generate multiple serious wellness threats that result in breathing illnesses and digestive problems together with deteriorating standard of living. Additionally, the economic stability of slum dwellers suffers because the improper waste management blocks employment opportunities and continuously drives individuals deeper into poverty. This research contributes to environmental justice discussions by identifying

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how substandard waste management policies harm vulnerable populations. The situation calls for new waste management strategies that protect marginalized groups because they must receive proper disposal systems alongside accessible recycling centers in addition to health education programs. However, the limitation of the study, this study focuses on only one slum area so future researchers require additional analysis to generate nationwide policy solutions for waste management in Bangladesh's urban areas. Improper waste management requires immediate attention because it serves two fundamental goals: public health improvement and urban sustainability development. Efficient waste collection systems combined with recycling promotion require authorities and policymakers to work closely with communities through organized organizations to achieve waste management goals. The health risks together with socio-economic gaps within marginalized communities will grow worse unless action is taken immediately. A sustainable future will arise through combining waste management with urban planning along with community participation to improve equity across the population.

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