

CrossRef DOI of original article:

# 1 Unveiling the Impact of Solid Waste Management on Health and 2 Poverty Alleviation in Dhaka City

3 Nahid Aktar

4 *Received: 1 January 1970 Accepted: 1 January 1970 Published: 1 January 1970*

---

## 6 Abstract

7 Dhaka, the capital of Bangladesh, faces significant challenges in solid waste management. This  
8 study aims to unlock the transformative power of proper solid waste management (SWM) in  
9 improving the health and economic well-being of disadvantaged urban residents in the city.  
10 While previous literature has focused primarily on waste collection, disposal and recycling,  
11 this study explores waste management as a powerful catalyst for poverty alleviation, unlocking  
12 the untapped potential for transformative change. Through qualitative and quantitative  
13 methods, including surveys, expert interviews and a systematic literature review, the study  
14 identifies sources of pollution and factors affecting slum dwellers' health and human  
15 development indicators. It classifies conditions affecting the health-based vitality of slum  
16 dwellers. The paper highlights the potential of sustainable waste management practices to  
17 improve health outcomes, reduce disease incidence, and alleviate poverty. It emphasizes the  
18 need for policymakers to prioritize comprehensive waste management initiatives and promote  
19 community awareness and participation to address these issues.

---

21 *Index terms*— urbanisation, slum population, solid waste, health hazard, poverty alleviation, human  
22 development.

## 23 1 Introduction

24 Bangladesh has experienced numerous obstacles since its independence, with one of the most pressing issues still  
25 unresolved being solid waste management. Dhaka has a population of 22.4 million as of 2022 living in 360  
26 km<sup>2</sup> area, making it one of the most populous cities in the world (Dhaka, Bangladesh Metro Area Population  
27 1950-2023, n.d.-b) 1 . Its urban population is expanding at a quicker rate of 3.4% annually than the entire  
28 population, which is growing at a high rate of 1.4%. It is estimated that 40 million people will live here by  
29 2040 ??Prodhan and Kaeser, 2020). As a result of the rise in population and consumer goods, B solid waste  
30 production is increasing rapidly every year and the Dhaka City Corporation (DCC) is struggling to keep pace  
31 with the growing waste management of the city.

32 Due to colossal population growth and lack of awareness, the volume of waste generation is increasing  
33 indiscriminately in rapidly urbanised Bangladesh 2 . The waste generation in Dhaka city has witnessed a  
34 significant increase from 2013 to 2021. According to the Climate and Clean Air Coalition (2013), only half of the  
35 estimated 1.65 million metric tons of solid waste generated in Dhaka city was collected for disposal annually.

36 Looking ahead, it is projected that by 2021, Dhaka had to manage approximately 6,500 tonnes of waste  
37 per day (Islam, S. 2021). Moreover, the city's hospitals and clinics generate 200 metric tons of waste which  
38 contain radioactive materials, hazardous chemicals and pathogenic compounds (Yasmin and Rahman, 2017).  
39 This indicates a substantial increase compared to the earlier estimated waste generation in 2013. Furthermore,  
40 the waste generation is expected to further escalate to around 8,500 tonnes per day by 2032, highlighting a  
41 continuous upward trend in waste generation and management challenges in the city. This massive wave of  
42 uncollected garbage poses a significant threat to public health, contributes to environmental degradation and  
43 exacerbates poverty.

## 5 D) THE RATIONALE FOR THIS STUDY

---

44 Therefore, the impact of poor SWM extends beyond environmental crises, significantly affecting public health  
45 and exacerbating poverty levels in the city (WHO, 2012). Improper disposal of solid waste, including open  
46 dumping and burning, releases harmful toxins and pollutants into the air, soil, and water sources. These pollutants  
47 pose a significant risk to the health of residents, leading to respiratory diseases, skin infections, and other illnesses  
48 (US Environmental Protection Agency, 2002 Agency, -2013)).

49 Furthermore, the oxidation of waste disposal sites provides breeding grounds for disease-carrying vectors such as  
50 flies, mosquitoes and rats, which increase the incidence of communicable diseases in the community (Choudhury,  
51 S. 2010). The ill effects of inadequate solid waste management are more detrimental to the slum areas of Dhaka.  
52 The ill effects of inadequate solid waste management are more detrimental to the slum areas of Dhaka. Low-  
53 income neighbourhoods, often lacking basic amenities and proper sanitation facilities, bear the brunt of the waste  
54 crisis (Jerin, et al., 2022). Residents of these areas are disproportionately exposed to health risks associated  
55 with unregulated waste disposal, increasing the risk of disease and pushing them further into poverty.

56 Dhaka City Corporation DCC, North 3 and South 4 are making efforts to solve this ongoing crisis, though  
57 it seems to be getting worse every day. Until the residents of the city banded together to find a solution,  
58 this massive waste seemed beyond DCC's ability to manage on its own (Prodhan and Kaeser, 2020). Hence,  
59 the situation remains unsolved despite earlier efforts, raising questions about the effectiveness and efficiency of  
60 waste management schemes. Solid waste management solutions have, however, been outlined in various scholarly  
61 articles or at the policy-making level.

62 Nevertheless, much of the current literature addressed collection, environment, disposal, and recycling. This  
63 study prioritizes waste management as one of the variables in poverty reduction by focusing on the way individuals  
64 of all socio-economic levels participate in the economy as a means of human development. Moreover, the  
65 implementation of proper waste disposal practices, such as recycling and resource recovery, can yield economic  
66 benefits by fostering a circular economy and mitigating strain on finite resources. This research addresses the  
67 pressing need for a comprehensive solution to the solid waste management challenges in Dhaka. It emphasizes  
68 the importance of an efficient waste management system in safeguarding public health and supporting poverty  
69 alleviation efforts .

### 70 2 a) Research Filed

71 The study area covers Dhaka City Cooperation (DCC), especially slum areas. This study presents the results  
72 of a cross-sectional survey conducted among 200 slum households in Dhaka, providing insights into the adverse  
73 consequences of poor waste management on the health and productivity of low-income groups and slums. The  
74 survey was conducted in three slum areas of Dhaka: Korail, Mohakhali and Kamrangirchar, selected on the  
75 basis of their size, population density and accessibility on their waste management practices, health and socio-  
76 economic status.

### 77 3 b) Target Waste

78 The study covers two types of solid waste under Dhaka City Corporation: namely, domestic waste and medical  
79 waste. Liquid and gaseous wastes are not included in the scope of this study.

### 80 4 c) The Significance of the Study

81 This study offers fresh perspectives on the threats to human health and the effects of poor waste management  
82 practices on poverty reduction and health in Dhaka. By identifying the specific health risks associated with poor  
83 waste management and emphasizing waste management as a poverty alleviation variable, this research analyse  
84 evidence-based decision-making, supports the development of targeted interventions, and promotes sustainable  
85 human development. The study's potential lies in improving public health, creating employment opportunities,  
86 guiding policy formulation, and advancing knowledge in waste management, health, and poverty alleviation.  
87 Moreover, the analysis presented in this study contributes to the existing literature on urbanization and poverty,  
88 providing recommendations for policymakers to address the adverse effects of poor waste management on  
89 population health and well-being.

### 90 5 d) The rationale for this study

91 Solid waste management is a critical issue in Dhaka where waste collection and disposal are often insufficient and  
92 inappropriate (Dhaka City Corporation, The People's Republic of Bangladesh, Japan International Cooperation  
93 Agency, 2005). The existing evidence on the linkage between poor solid waste management and adverse health  
94 outcomes calls to action by all stakeholders in understanding, prioritizing, and addressing the issue of solid waste  
95 in our midst to ensure that our environment and health are preserved (Enayetullah, Sinha, & Khan, 2005).

96 The need to build on previous research is evident, as there are gaps in current knowledge and inconclusive  
97 or controversial findings from previous studies. For instance, the study by (Hasan & Chowdhury, n.d.). shows  
98 that solid waste poses a serious health hazard and leads to the spread of infectious diseases, while (Yasmin &  
99 Rahman, 2017a) highlights that poor waste collection leads to environmental and marine pollution and can block  
100 water drains, resulting in flooding and other standing waters that favour cholera and vector-borne diseases such  
101 as malaria and dengue.

---

102 Therefore, this study aims to unveil the impact of solid waste management on health and poverty alleviation  
103 in Dhaka City by presenting a framework that aids understanding of (poor) solid waste management and its  
104 impact on health with a view to stimulating research, guiding the development of policies and implementation  
105 of appropriate interventions. The study identifies and describes the main pathways through Unveiling the  
106 Impact of Solid Waste Management on Health and Poverty Alleviation in Dhaka City which poor solid waste  
107 management affects health and poverty alleviation, updates concepts in light of new findings and/or new technical  
108 advancements, and answers unanswered questions.

## 109 6 II.

## 110 7 Literature Review

111 Bangladesh's high population density and rapid urbanization contribute to increased waste generation, negatively  
112 affecting public health and poverty. The consequences extend beyond health and environment, affecting the  
113 poverty level and quality of life. According to Azom et al. (2012), uncontrolled waste management in urban  
114 areas leads to the accumulation of solid waste, which not only poses environmental challenges but also has  
115 detrimental effects on public health. Their study highlighted the negative impact of improper waste disposal on  
116 air quality, water contamination, and the spread of infectious diseases. Similarly, ??riassi et al. (2016) emphasized  
117 the link between inadequate waste management and respiratory diseases, citing evidence of increased respiratory  
118 symptoms and decreased lung function among individuals living in close proximity to open dumping sites.

119 On the other hand, Yasmin and Rahman (2017) conducted a study on the awareness and practice of household  
120 solid waste management among community people and found that poor household solid waste management poses  
121 serious health risks and spreads communicable diseases. Their study emphasized the health risks of waste  
122 contamination. Poor waste collection also leads to environmental and marine pollution and can block water  
123 drains, resulting in flooding and other standing waters that favour cholera and vector-borne diseases such as  
124 malaria and dengue.

125 Silpa Kaza (2018), lead author of the What a Waste 2.06 and urban development expert at the World  
126 Bank argues that "Environmentally sound waste management touches many important aspects of development."  
127 Transitioning to sustainable waste management will take time and money. The article further claims that for  
128 many municipal governments, waste management is the single largest budget line item. It makes up an average  
129 of 20% of municipal budgets in low-income countries. "However, when it comes to designing liveable, healthy,  
130 and inclusive cities and communities, solid waste management is often an overlooked concern.

131 Therefore, in the interest of both its citizens and the environment 7 , governments must take swift action  
132 to address waste management (What a Waste: An Updated Look into the Future of Solid Waste Management,  
133 2018)." Furthermore, a study by Magaji & Dakyes, (2011) highlighted the socioeconomic implications of poor  
134 waste scavenging practices as a means of poverty alleviation in Gwagwalada, Abuja. Their findings revealed that  
135 substandard waste management disproportionately affects marginalized populations, leading to increased health  
136 disparities and hindering poverty alleviation efforts.

137 Similarly, Ashikuzzaman and Howlader, (2020) conducted a comprehensive analysis of the economic costs  
138 associated with inefficient waste management, underlining the potential economic benefits of implementing  
139 sustainable waste management practices.

140 Considering the circumstances of urban waste management in Bangladesh, Bhuiyan (2010) stressed that a  
141 well-structured public-private partnership may enable successful solid waste management and ensure good urban  
142 governance in Bangladesh. In their 2016 study on municipal waste management in Bangladesh, in Dhaka,  
143 Saifullah and Islam (2016) asserted that MSWM is a complicated issue with drastic consequences for human  
144 development, public health, and poverty reduction. The United Nations Human Development Index (HDI)  
145 report, covering 1990 to 2021, also emphasizes the importance of health, education and living conditions as key  
146 indicators for assessing a country's overall level of human development.

147 The existing literature reveals contrasting perspectives among academia, governments, and NGOs regarding  
148 the adverse effects of waste management. However, the well-being of slum dwellers in terms of health and poverty  
149 alleviation remains unattended, hindering their integration into the economy and progress in human development.  
150 Therefore, this study underscores the significance of comprehending the intricate interplay of social, economic,  
151 and environmental factors that contributes to inadequate waste management practices and their detrimental  
152 consequences. By investigating the multifaceted dimensions of waste management and its impact on the health,  
153 environment, and socio-economic aspects of the vulnerable population in the city, this research aims to bridge  
154 these knowledge gaps and address these pressing issues.

155 Overall, the study contributes to a growing body of research on waste management in Dhaka and provides a  
156 basis for further research and policy development in this area.

## 157 8 a) Methodology

158 This study employed a mixed-method research design 8 , combining qualitative and quantitative approaches,  
159 to address the research question. It involved a cross-sectional survey conducted among 200 slum households in  
160 three areas of Dhaka. To address this, qualitative aspects were incorporated through 25 interviews including 5  
161 expert interviews. The survey was conducted based on location, population density and accessibility in three

162 slum areas of Dhaka such as Korail, Mohakhali and Kamrangirchar. The data collection methods included  
163 semi-structured interviews 9 , a questionnaire survey, primary and secondary data analysis<sup>10</sup> from various  
164 sources. By integrating qualitative and quantitative data, the study designed to comprehensively understand  
165 the relationship between solid waste management, health outcomes, and poverty alleviation in Dhaka City,  
166 capturing both nuanced experiences and broader patterns associated with waste management practices and their  
167 effects on individuals and society.

### 168 **9 b) Limitations of the Study**

169 The study faced several challenges in collecting data from the target demographic profiles. The statistical survey  
170 included participants from both affluent and low-income areas. Since affluent areas enjoy adequate services from  
171 DCC waste pickers, they do not fully represent the vulnerable population resulting in a skewed representation  
172 that may not accurately reflect the larger vulnerable population. These limitations should be considered when  
173 interpreting the results, as they may give a misleading impression of the overall effectiveness of waste collection  
174 services.

175 Furthermore, the study was limited by the remote geographical location of the area and self-financing. Access  
176 to specific slum areas and government officials, NGO 11 representatives, hospital administrators and interviewers  
177 often posed additional barriers to data collection. Survey results indicate a gender distribution with a higher  
178 representation of male respondents, highlighting the need to acknowledge the survey's limitations in capturing  
179 the experiences and perspectives of those outside the male/female binary. It is momentous to note that the  
180 survey did not have the option of identifying outside of the traditional male/ female category.

181 Future surveys should include inclusive gender options so that respondents can accurately self-identify their  
182 gender. Despite efforts to address these limitations, an attempt has been made to provide an accurate result by  
183 analysing both primary and secondary data.

### 184 **10 c) Ethical Consideration**

185 Ethical considerations for the study on the impact of solid waste management on health and poverty alleviation  
186 in Dhaka City encompass several key aspects. Firstly, obtaining ethical approval from the relevant committee was  
187 sought to ensure the study adhered to established ethical guidelines. Secondly, the privacy and confidentiality  
188 of the participants <sup>12</sup>were strictly upheld, with measures implemented to safeguard their personal information.  
189 Informed consent, wherein participants were fully informed about the study's purpose and potential benefits, was  
190 obtained to ensure voluntary participation (Kothari, C. R. 2004).

191 The study also took into account the cultural beliefs and practices of the participants, ensuring that the  
192 research did not infringe upon their cultural values or customs (Connelly, L. M. 2014). Moreover, precautions  
193 were taken to prevent any harm to the participants or the community throughout the study duration. It was  
194 also ensured that the waste management practices under investigation did not pose any risk to public health or  
195 the environment (World Medical Association, 2013).

196 Furthermore, the study emphasized the principles of avoiding exploitation and coercion of participants,  
197 ensuring their autonomy and understanding of their rights (Giordano, et al., 2007). The research was designed to  
198 benefit society as a whole, while justifying any potential risks to participants by expected benefits, aligning with  
199 the principles outlined in the Nuremberg Code <sup>13</sup>. Overall, this study demonstrates a commitment to ethical  
200 principles, prioritizing the protection of human subjects and ensuring that the potential benefits of the study  
201 outweigh any associated risks.

## 202 **11 III. Research Finding: Demographic Profile and Data Analysis**

204 In this study, primary data collection was directed through a set of questionnaires (Williamson, C., 2013).  
205 Following a description of the responses given by the participants, the findings were highlighted in line with the  
206 data analysis and presentation. Correspondingly, it involved a retrospective study <sup>14</sup>, where a questionnaire was  
207 carefully analysed to ensure that the data collected was presented clearly with the help of tables, percentages and  
208 graphs. Largely, the results of these findings provide a comprehensive understanding of the use of questionnaires  
209 for data collection and subsequent data analysis and presentation of findings. <sup>14</sup> Retrospective studies are research  
210 studies that look back in time, typically at medical records or other historical data, to identify risk factors for  
211 a disease or to determine outcomes of medical intervention. Source: respondents identified as male and 42% as  
212 female. The statistical analysis revealed a mean value of 1.42, indicating that the respondents were more likely to  
213 identify as male. At the beginning of the interview, women participated less than men in the survey while being  
214 fully aware of health risks and waste issues. It has been observed that Bangladeshi women today have access to  
215 education, but their participation and expression in society are low.

## 216 **12 Analysis and Findings**

217 The survey question aimed to determine the gender distribution of respondents, with 58% of the total

---

## 218 **13 Analysis and Findings**

219 The question is aimed at gathering information about the age distribution of the respondents. The majority of  
220 respondents fell into the age categories of 36-50 (34%) and 25-35 (27%). The other age categories were also  
221 represented, with 18-25 accounting for 17%, followed by Above 50 (13%) and Under 18 (9%). The statistical  
222 analysis revealed a mean value of 3.24, indicating that, on average, the respondents' age category falls between 25-  
223 35 and 36-50. The data highlights the importance of considering age diversity when designing waste management  
224 interventions and strategies, as it can lead to more effective strategies that resonate with individuals across  
225 various stages of life. By tailoring initiatives to different age groups and addressing their unique characteristics,  
226 it becomes possible to promote sustainable waste management practices among individuals of all ages.

## 227 **14 Analysis and Findings**

228 The purpose of this question is to collect information about the occupation of the respondents. The majority  
229 of respondents reported being in the following professions: Unemployed (21%), Business (16%), Professional  
230 work (17%), and Housewife/casual labourer (14%). Other significant professions mentioned include Day labourer  
231 (12%), Student (9%), and Government and private service (8%). A smaller percentage of respondents indicated  
232 other professions, such as Sales assistant, Maid, and Musician (Sitarist). The statistical analysis revealed a  
233 mean value of 4.28, indicating that, on average, the respondents' professions fall between Professional work and  
234 Business.

235 Understanding the occupational profile of the surveyed population is crucial for tailoring waste management  
236 interventions and strategies to effectively engage different groups. By considering the respondents' professions,  
237 policymakers, organizations, and waste management initiatives can develop targeted approaches that address the  
238 specific needs, challenges, and opportunities associated with different occupations.

## 239 **15 Global Journal of Human**

## 240 **16 Analysis and Findings**

241 The objective of this question was to collect information about the education level of the respondents. According  
242 to the responses, the majority of respondents had completed either Primary education level (24%) or University  
243 Degree (21%), Secondary education level (19%) or Higher education (15%), and 20% had never enrolled in school.  
244 The statistical analysis revealed a mean value of 2.94, indicating that, on average, the respondents' education  
245 level falls between Secondary education level and Higher education. Understanding the educational profile of  
246 the surveyed population is essential in designing effective waste management interventions and communication  
247 strategies. It highlights the importance of tailoring educational programs and awareness campaigns to cater to  
248 different educational backgrounds and literacy levels.

249 Targeting educational initiatives towards individuals with lower levels of education can help bridge the  
250 knowledge gap and promote sustainable waste management practices among a wider segment of the community.  
251 Overall, the data highlights the need for an inclusive and holistic approach to waste management education,  
252 ensuring that educational initiatives are accessible and beneficial to individuals with varying levels of education.

## 253 **17 Analysis and Findings**

254 The question aimed to determine the average monthly income range of the respondents. The majority of  
255 respondents fell into the following income ranges: Tk. 15,000 -Tk. 35,000 (19%), More than Tk. 35,000  
256 (17%), and Less than Tk. 3000 (18%). Income ranges of Tk. 3000 -Tk. 5000 (10%) and Tk. 5000 -Tk.15,000  
257 (15%) were also reported by a portion of the respondents. The statistical analysis revealed a mean value of 3.70,  
258 indicating that, on average, the respondents' income falls between the Tk. 15,000 -Tk. 35,000 range.

259 Understanding the income distribution among the surveyed population is crucial in assessing the financial  
260 capacity to address waste management issues effectively.

261 Local authorities and relevant stakeholders can utilize this information to design inclusive and equitable  
262 waste management strategies that consider the varying income levels within the community. Policymakers and  
263 organizations can develop tailored approaches to waste management that are financially viable, sustainable, and  
264 supportive of the community's economic well-being.

## 265 **18 # Answer**

266 Response %

## 267 **19 Analysis and Findings**

268 This question was posed to gather information about the type of dwelling occupied by the respondents. The largest  
269 group of respondents (32%) reported living in slum settlements, while other common housing types (27%) and  
270 own houses/apartments (17%) were also reported. Tenements and semi-structured houses were reported by 12%  
271 of the respondents each. The statistical analysis revealed a mean value of 2.69, indicating that the respondents'  
272 housing falls between slum settlements and rented houses/apartments. Understanding the types of housing in the

273 surveyed area can provide valuable insights into the living conditions and socioeconomic factors that may impact  
274 waste management practices. Local authorities and community organizations can develop comprehensive waste  
275 management strategies that address the specific needs and circumstances of different housing types, contributing  
276 to improving waste management practices, promoting hygiene, and enhancing the overall quality of life in the  
277 surveyed area. The question is intended to gather information about how long respondents have lived in their  
278 current property. According to the responses, the largest group of respondents (38%) reported living in their  
279 current property for 1 to 5 years, with a significant percentage (24%) having a residency of more than 5 years.  
280 The statistical analysis revealed a mean value of 2.43 the respondents is between 1 to 5 years. Understanding  
281 the length of time individuals have been living in their properties can provide insights into their familiarity  
282 with waste management practices and their potential engagement in community initiatives. By tailoring waste  
283 management efforts based on the duration of residency, local authorities and community organizations can foster  
284 a sense of ownership, engagement, and responsibility among residents, leading to more effective and sustainable  
285 waste management practices.

286 Question 8: How many family members are there within your household?

### 287 **20 Analysis and Findings**

288 The primary objective of this question is to ascertain how many people make up each family. The data collected  
289 provides insights into the household size distribution among the surveyed population. The largest group of  
290 respondents (35%) reported having 4-5 Question 10: Is there any waste disposal service present in your area?

### 291 **21 Analysis and Findings**

292 The aim of this question is to identify the primary location where the respondents keep their household waste.  
293 The data collected provides insights into the common practices of waste disposal among the surveyed population.  
294 The majority of respondents particularly in affluent neighbourhoods (54%) reported binning their household  
295 waste indoors, while a smaller percentage (5%) reported using a disposal bin in front of the house. Due to a  
296 lack of resources, 15% of respondents admitted to littering on roadsides, especially in slum areas, while 18%  
297 mentioned littering anywhere. Only 8% stated that they keep their waste in a roadside bin.

298 The statistical analysis reveals a mean value of 2.22, indicating that keeping household waste in bins inside  
299 the house is the most prevalent practice among the respondents. However, a portion of respondents admitted to  
300 littering waste beside the road or disposing of waste anywhere, which can contribute to environmental pollution  
301 and health hazards. Overall, respondents from affluent areas adopt responsible waste disposal practices by using  
302 indoor bins. But this awareness and infrastructural opportunities are not created among slum dwellers about the  
303 dangers of littering. Nevertheless, addressing littering and inappropriate waste disposal behaviours is essential  
304 to mitigate the negative impacts associated with these practices.

### 305 **22 Global Journal of Human Social Science**

### 306 **23 Analysis and Findings**

307 The purpose of this question is to ascertain whether the respondents' area provides waste disposal services. 68% of  
308 respondents confirmed the presence of waste disposal services in their area, while 33% indicated that there are no  
309 services available. While the study was conducted in both high and low-income areas, it was found that there were  
310 significant differences in waste management practices among the places. The findings indicate that a majority of  
311 respondents have access to waste disposal services, absence of waste disposal services, which highlights the need for  
312 attention and potential improvements in waste management infrastructure. To understand differences in waste  
313 management, respondents were selected from both high and low-income areas, showing significant differences  
314 in waste management practices between locations. Slums, where population density and waste management  
315 requirements are high, receive negligible services from DCCs indicating high health risks and, in turn, affecting  
316 incomes leading to poverty. However, efforts may be required to address the needs # Answer Response %

### 317 **24 Analysis and Findings**

318 The purpose of the poll is to find out how frequently respondents' homes are visited by DCC's garbage collectors.  
319 The data collected provides insights into the regularity of waste collection services provided by waste pickers.  
320 52% of respondents reported that waste pickers collect waste from their households on a daily basis, 26% visited  
321 2-3 times a week, and 4% indicated once a week, 9% mentioned 5-6 days a week, and 9% stated that waste  
322 pickers do not collect waste from their households. The statistical analysis showed a generally collect waste from  
323 households quite frequently. A small portion of respondents mentioned infrequent waste collection or the absence  
324 of waste pickers collecting waste from their households. However, respondents from high-income groups who  
325 receive adequate services from DCC waste collection responded positively to these survey questions, in contrast  
326 to respondents from low-income areas, particularly slum areas, where the population is substantial but absent.

327 -

---

## 25 Analysis and Findings

The question inquired about the sources from which waste pickers collect household waste. Based on the responses, 50% of respondents reported that waste pickers collect waste directly from their homes. Another 17% mentioned that waste pickers collect waste from the disposal bin in front of their houses. Additionally, 33% of respondents provided other specifications about the sources from which waste pickers collect waste. Results showed that 50% of respondents reported that waste pickers collect waste directly from their homes, 17% from the disposal bin in front of their houses, and 33% provided other specifications about the sources from which waste pickers collect waste. to ensure efficient waste collection. Additionally, proper waste segregation and disposal practices must be implemented to facilitate waste pickers' work. Overall, the survey data suggests that waste pickers retrieve waste from various sources, including homes and disposal bins.

## 26 Statistic Value

Min Question 13: In order to maintain hygiene in your household, do you believe it is preferable to dispose of waste in a designated bin outside your house rather than inside, allowing waste pickers to collect directly?

The question explores respondents' views on waste disposal practices to maintain household hygiene. The analysis of responses reveals that the majority of respondents (83%) agree or strongly agree that it is preferable to dispose of waste in a designated bin outside their house, allowing waste pickers to collect directly. However, a small percentage of respondents (5%) disagree or strongly disagree with this method. Additionally, 13% of respondents neither agree nor disagree, indicating neutrality or uncertainty about the preferred waste disposal approach. The findings suggest that the majority of respondents prioritize maintaining household hygiene by endorsing the use of designated bins outside their homes, facilitating waste pickers' direct collection.

This preference aligns with the idea of efficient waste management and minimizing potential health risks associated with keeping waste inside the house. Overall, the survey data indicates a positive inclination towards utilizing designated bins outside the house for waste disposal, enabling waste pickers' direct collection.

## 27 Question 14: How often in a week do DCC waste collectors collect disposed waste from the roadside open bin?

A Analysis and Findings

## 28 # Answer

Response % Question 15: Who takes the initiative to clean your neighbourhood?

## 29 Analysis and Findings

The question inquired about the frequency of waste collection by Dhaka City Corporation (DCC) waste collectors from roadside open bins. The most common frequency reported was once a week, with 43% of respondents indicating this. Daily collection was mentioned by 22%, while 2-3 times a week was reported by 16%. A smaller proportion (19%) provided other responses, which varied and included "no idea," "sometimes," "not specified," and "never." The statistical analysis revealed that the mean value was 2.59, with a minimum value of 1 and a maximum value of 4. Overall, the survey data suggests that waste collection from roadside open bins by DCC is primarily reported as once a week, followed by daily and 2-3 times a week.

However, the presence of other responses indicating uncertainty or lack of knowledge emphasizes the need for improved communication and awareness about waste collection schedules. These findings highlight the importance of regular and efficient waste collection services to maintain cleanliness and hygiene in the community, and call for transparent and accessible information about waste collection schedules to ensure proper waste management and minimize potential health and environmental risks associated with waste accumulation.

## 30 Statistic Value

Min

## 31 Analysis and Findings

The survey found various waste management methods in Dhaka City, 28% of respondents reported that community workers take the initiative to clean their neighbourhoods, while 16% reported personal involvement in waste management. 24% of respondents reported that DCC workers clean their neighbourhood, while 7% reported using other methods. Interestingly, 24% of respondents reported that none of these methods is used in their neighbourhood, indicating a lack of waste management services in those areas. This highlights the need for greater investment in waste management infrastructure and services, particularly in areas where these services are lacking. Additionally, the results suggest that community-based waste management initiatives may be effective in improving waste management in some areas.

- Year

**32 Analysis and Findings**

This question examined the perception of respondents regarding the impact of individual and community involvement in waste clean-up on health and the local environment. The analysis of responses revealed that a significant portion of respondents (44%) agreed, (30%) strongly agreed that individual and statistical analysis showed that the mean value was 3.94, with a minimum value of 1 and a maximum value of 5.

Overall, the survey data suggests that a majority of respondents believe in the potential positive outcomes of individual and community involvement in waste clean-up on health and the local environment. These results highlight the importance of promoting and supporting initiatives that encourage community engagement in waste clean-up efforts.

**33 Question 17: Have you or any of your family members had any recent illness in the last 6 months?****34 # Answer**

Response %

**35 Analysis and Findings**

In the past six months, respondents' or their families' recent illnesses were inquired about in the survey. The most often stated ailments were skin conditions (29%), chest complications (27%), stomach parasites (61%), and diarrheal infections (78%). Poliomyelitis communicable diseases (15% of respondents) were also mentioned. A small number of respondents (10%) specified other illnesses not listed in the provided options, such as non-allergic rhinitis (NAD) and asthma. These findings suggest a notable prevalence of illnesses associated with waste within the respondents' families.

The presence of diarrheal diseases and abdominal parasites aligns with the potential consequences of poor waste management on water and food contamination, skin diseases and chest complications may also be linked to unhygienic living conditions influenced by waste, and asthma and nonallergic rhinitis (NAD) indicate the possibility of respiratory conditions influenced by waste-related factors. The survey data underscores the importance of addressing waste management and improving sanitation practices to reduce the risk of communicable diseases. The question explored the age group within respondents' families that is most affected by communicable diseases related to waste. The age group of 0-12 years appears to be the most affected, with 39% of respondents indicating that this age group experiences a higher incidence of communicable diseases related to waste. A smaller proportion of respondents reported the age groups of 20-35 years (5%), 35-50 years (2%), and over 50 years (4%) as being most affected. Additionally, 31% of respondents stated that communicable diseases related to waste affect all age groups within their family. These findings suggest that children (0-12 years) are perceived to be the most vulnerable to communicable diseases associated with waste, and the importance of safeguarding their health through effective waste management practices and preventive measures. Additional research and analysis is needed to establish a definitive correlation, but the data underscores the importance of targeted interventions and education initiatives to protect the health of children and other vulnerable age groups from the impact of waste-related communicable diseases.

**36 Global Journal of Human****37 Global Journal of Human Social Science****38 Analysis and Findings**

This question seeks to comprehend the perceived responsibility of open waste for the incidence of infectious diseases among household members of the respondents. An overwhelming majority (94%) answered affirmatively, stating that open waste is responsible for the infectious diseases experienced by their family members. A small proportion (6%) responded negatively, suggesting that they do not the specified period, while 30% reported visiting 2 to 3 times, while 15% visited more than 3 times. A significant portion (20%) indicated they had not visited a health centre for infectious diseases within the past 6 months. Further analysis could provide additional context, such as the reasons for seeking healthcare or barriers # Answer Response % Question 21: If yes, did your doctor confirm that the disease was caused by waste?

35% of respondents visited a health centre once during preventing individuals from visiting health centres.

**39 Analysis and Findings**

The question studies the frequency of visits to a health centre for infectious diseases in the past 6 months among respondents and their family members. The data collected provides valuable insights into the utilization of healthcare services for infectious diseases. Question 22: How many days did you or your family members miss work or school due to a communicable disease in the past 6 months? Please provide the average number of days missed.



---

## 40 Analysis and Findings

The question asks whether the respondents' doctors have confirmed that the disease they experienced was caused by waste. The data obtained provides insights into the confirmation of waste-related diseases by medical professionals. Of the respondents, 63% answered affirmatively, stating that their doctors confirmed the link between their disease and waste. In contrast, 37% responded negatively, indicating that their doctors did not establish a direct connection between the disease and waste.

These findings suggest that a significant proportion of respondents received confirmation from medical professionals regarding the causal relationship between their illness and waste. However, it is essential to note that further investigation may be necessary to determine the specific types of diseases and waste sources involved, as well as the limitations of diagnostic processes. Overall, the survey highlights the importance of medical confirmation in establishing the connection between diseases and waste, which can guide public health interventions, waste management strategies, and healthcare approaches to mitigate the impact of wasterelated illnesses.

## 41 Global Journal of

## 42 Analysis and Findings

The question looks into how many days in the past 6 months the person or their family members missed work or school because of an infectious disease. The data collected provides valuable insights into the frequency of absences. The responses reveal that the majority of respondents (30%) reported missing work or school once during the specified period. A similar proportion of respondents (32%) reported missing 2 to 3 times, while 29% reported missing more than 3 times. A smaller portion (10%) provided other responses, which were not specified.

Overall, the survey highlights a significant number of absences due to communicable diseases in the past 6 months, with a range from occasional absences to more frequent occurrences. These findings indicate the potential impact of communicable diseases on work and educational attendance. It is worth noting that further analysis could provide additional context and insights into specific factors contributing to the frequency of absences. Nevertheless, the data underscores the importance of implementing measures to prevent and manage communicable diseases, such as promoting vaccination, hygiene practices, and workplace/school policies that support the health and well-being of individuals.

## 43 Analysis and Findings

The analysis explores the effects of wasterelated health issues on a person's financial stability, productivity at work, and overall well-being. Based on the survey, 95% of respondents believed that proper waste management can prevent communicable diseases, according to an expert from the environment and health department. The statistical analysis of the responses suggests that waste-related health issues have a minimal impact, with a mean value of 1.05 and a minimum value of 1 and a maximum value of 2. The small variance and low standard deviation further support the notion that the impact is relatively consistent across the respondents. Further research could provide additional insights into specific factors that may affect the relationship between waste-related health issues and these aspects of life. Question 25: How does improved health status impact a person's earnings, job opportunities, and quality of life in terms of education, treatment, and nutrition?

## 44 Analysis and Findings

The question seeks to recognise the effects of waste-related health problems on an individual's financial stability, workplace performance, productivity and general well-being. The statistical analysis of the responses suggests that waste-related health issues have a minimal impact, with a mean value of 1.05 and a minimum value of 1 and a maximum value of 2. The majority of respondents (54%) strongly agree that health issues can have a negative impact on their income, efficiency, productivity, and overall prosperity. A significant portion of respondents (33%) agree that health issues can have an adverse effect on their financial stability, work efficiency, productivity, and overall well-being. Neither Agree nor Disagree: A small portion of respondents (11%) neither agree nor disagree with the statement.

Overall, the data highlights the importance of good health and the acknowledgement of its potential influence on various aspects of life. These findings underscore the significance of addressing health concerns and implementing measures to mitigate their adverse effects on individuals' well-being and livelihoods.

## 45 Global Journal of Human

## 46 Analysis and Findings

This question explores the relationship between improved health status and its impact on various aspects of a person's life, including earnings, work opportunities, and quality of life. A majority of respondents (61%) strongly agree that improved health status positively affects earnings, job opportunities, and quality of life, suggesting that there is a significant correlation between good health and these aspects of life. Additionally, 67% of respondents strongly agree that improved health status can have a positive impact on the quality of life in terms of education,

491 treatment, and nutrition. However, a portion of respondents (29%) simply agree without strongly agreeing,  
492 suggesting that while they acknowledge the positive impact of improved health on earnings, job opportunities,  
493 and quality of life, they may not perceive it as an overwhelmingly strong relationship.

494 The findings from this survey align with existing research that supports the idea that improved health status  
495 has wide-ranging benefits and can significantly influence a person's economic and overall well-being. The study  
496 reveals that in slum areas, poor waste management is prevalent among 90% of respondents, resulting in health  
497 issues, decreased immunity, chronic diseases, and a subsequent decline in income. The findings emphasize the  
498 urgent need to improve waste management and healthcare in slum areas to enhance economic productivity and  
499 overall quality of life. Investments in infrastructure and targeted programs are necessary to achieve these goals.

## 500 **47 V.**

501 A Review on the New Development: Insights from Studies and Reviews

502 The new developments in solid waste management (SWM) in Bangladesh can be organized as follows:

## 503 **48 Current Situation in Dhaka**

504 In recent years, solid waste infrastructure management in Dhaka, the capital of Bangladesh, has involved private  
505 and public partnerships (Zahur, M.

## 506 **49 2007**

507 ). Despite these efforts, the city has not seen significant changes or a clean look. Additionally, the indiscriminate  
508 littering of city dwellers remains unabated.

## 509 **50 Collaboration with Japan International Cooperation Agency 510 (JICA)**

511 In 2005, the Japan International Cooperation Agency (JICA) initiated a master plan to enhance Dhaka city's  
512 SWM capacity and management skills. The plan aimed to address the lack of regulatory administration and laws  
513 for waste management (Dhaka City Corporation & JICA, 2005).

## 514 **51 Household Waste Management and Collection Systems**

515 Ahsan & Zaman (2014) suggest that there have been changes in the household waste management and collection  
516 systems in both South and North Dhaka City Corporation, although there is no visible improvement in the  
517 appearance of streets and neighbourhoods.

## 518 **52 Medical Waste Management**

519 Dihan et al. (2023) report on Bangladesh's current medical waste management situation, predicting the  
520 generation of 50,000 tons of medical waste using an empirical model.

## 521 **53 Technological Advances and Management Principles**

522 Singh et al. (2013) highlight the importance of discussing recent technological advances, management principles,  
523 pitfalls, and challenges associated with SWM in urban areas.

## 524 **54 Proposed Waste Disposal System**

525 Vashi & Desai (2018) propose a waste disposal system that incorporates integrated informal recycling, small-  
526 scale bio-methanation, Mechanical Biological Treatment (MBT), and Refuse-Derived Fuel/Waste-to-Energy  
527 (RDF/WTE) technologies.

## 528 **55 Adoption of the 3R Strategy**

529 In 2010, the Department of Environment (DoE) in Bangladesh adopted the 3R strategy (reduce, reuse, recycle)  
530 to promote sustainable waste management practices. The 3Rs play a crucial role in reducing greenhouse gas  
531 emissions and transforming waste into valuable resources.

## 532 **56 Construction of Waste Management Plants**

533 The DoE launched a program to construct two waste management plants-one in Matuail (Dhaka South City  
534 Corporation) and another in Amin Bazar (Dhaka North City Corporation). These plants aim to produce compost  
535 fertilizer from solid waste collected in different parts of Dhaka, with a daily production capacity of 20 tonnes per  
536 plant (Yousuf & Reza, 2013).

---

## 57 Establishment of Secondary Transfer Stations (STS)

The construction of 52 STSs in Dhaka North City Corporation has helped in removing large quantities of waste containers from roads, thereby improving traffic conditions. However, progress in the construction of STSs in Dhaka South City Corporation has been slow, with only 12 of the planned 45 completed (Saqib, M. 2018).

## 58 Coordination of Primary Waste Collection

The Primary Waste Collection Service Provider (PWCSP), an NGO, coordinates the collection of waste from households to the STS. In 2016-17, 340 private operators were registered with PWCSP, but there are also unregistered operators involved in waste collection (Prodhan, & Kaeserb, 2019).

## 59 Review of Progress and Future Outlook

An overview of progress towards the implementation of solid waste management policies in Dhaka indicates that a modern and environmentally friendly approach is needed. The current waste management practices pose health and livelihood risks. The success of the waste-to-energy project and adherence to the master plan will determine the future of waste management in Dhaka (Jerin et al., 2022).

The developments in SWM in Dhaka, including compost production, construction of STS, and coordination of waste collection, reflect efforts to improve waste management practices (Kabir, 2015). However, the waste management situation in Dhaka requires a more modern and environmentally friendly approach to address the existing challenges effectively. Solid waste mismanagement is a global problem with far-reaching consequences for environmental pollution, social inclusion and economic sustainability, especially in developing countries, and Dhaka, the capital of Bangladesh, is one of them. Dhaka City Corporation is facing serious challenges in providing a satisfactory service to city dwellers due to limited resources and poor management plans, highlighting the need for more comprehensive and sustained efforts to improve waste management practices in the city (Ahsan, et al., 2014).

Insufficient waste management practices pose significant threats to both the environment and the wellbeing of Dhaka's residents (Haque & Alam, 2012). Hence, it is essential to increase investment in education and training for waste management professionals, infrastructural development, awareness campaigns, and resources to support sustainable waste management practices (World Bank, 2011). This paper highlights the urgent need for innovative approaches, increased awareness, and targeted policies to address the challenges of solid waste management in Dhaka, Bangladesh.

Furthermore, this study provides insights into the challenges and implications of solid waste management in Dhaka collaboration among stakeholders. Evaluating the effectiveness of these strategies, particularly those targeting vulnerable populations, and exploring innovative waste management approaches are essential for a cleaner and healthier environment, improved public health outcomes, and enhanced human development and poverty alleviation efforts in Dhaka.

As inadequate waste management disproportionately affects these communities, it is crucial to address the unique needs of vulnerable groups (Hoornweg, D. 2012). Solid waste management is interconnected with environmental health, poverty alleviation, and economic development (Wilson, et al., 2015). Therefore, waste management should be approached as an integral part of sustainable development, offering potential benefits such as employment opportunities, reduced health costs, and economic growth (World Bank, 2012).

Nevertheless, further studies should concentrate on assessing the efficacy of these methods, particularly those that target disadvantaged communities, and investigating cutting-edge waste management strategies in the context of Dhaka. By addressing these critical issues, Dhaka can work towards a cleaner and healthier environment, improved public health outcomes, and enhanced human development and poverty alleviation efforts.

Inadequate solid waste management in Dhaka, Bangladesh has far-reaching implications for human development, poverty, and health. The city's poor waste management practices have led to an increased prevalence of infectious diseases, degraded air and water quality, and contributed to a high rate of poverty and illness. It is crucial to recognize the importance of sustainable solid waste management (SWM) in achieving human development goals and addressing these pressing concerns in Dhaka. This study sheds light on the significant impact of solid waste management (SWM) on health outcomes and poverty alleviation in the city. The findings reveal that inadequate municipal solid waste management practices contribute to disease prevalence and pose substantial risks to public health. The inadequate disposal of waste not only leads to environmental pollution but also exacerbates poverty, particularly among low-income groups and slum dwellers.

Although there are numerous causes why a community falls under the grip of poverty, it is crucial to acknowledge that unsanitary living conditions, compromised health, and the prevalence of wasterelated communicable diseases significantly contribute to the perpetuation of poverty and the decline in living standards. This research nevertheless underscores the urgent requirement for comprehensive and effective strategies in solid waste management (SWM) specifically tailored to address the needs of vulnerable communities in Dhaka.

By revealing the negative consequences of poor waste management, it highlights the importance of prioritizing sophisticated waste management initiatives. These initiatives should encompass waste reduction, efficient collection systems, and recycling programs. Specifically, prioritizing solid waste management in slum areas should be a key focus. Furthermore, promoting community awareness and participatory campaigns is crucial

597 to foster behavioural changes towards sustainable waste management practices. Achieving these goals requires  
598 collaboration between government agencies, non-governmental organizations, and local communities to develop  
599 and implement integrated waste management solutions.

600 The solution is achievable through the allocation of funds and the establishment of collaborative monitoring  
601 mechanisms among stakeholders. Applying these measures will yield significant benefits, including improved  
602 health, pollution control, reduced disease burden, increased income, and overall enhancement of human  
603 development. By striking a balance between these initiatives, Bangladesh can effectively address the challenges  
604 of waste management and pave the way for sustainable development.

605 Further research is required to explore the long-term impact and economic benefits of a comprehensive waste  
606 management system in Dhaka city. Scalability and replicability studies of successful waste management models in  
607 other urban contexts can contribute to broader knowledge and guide policy decisions. Furthermore, incorporating  
608 participatory approaches and engaging local communities will be instrumental in achieving equitable and  
609 sustainable SWM outcomes.

610 **60 Global Journal of Human Social Science**



Figure 1:

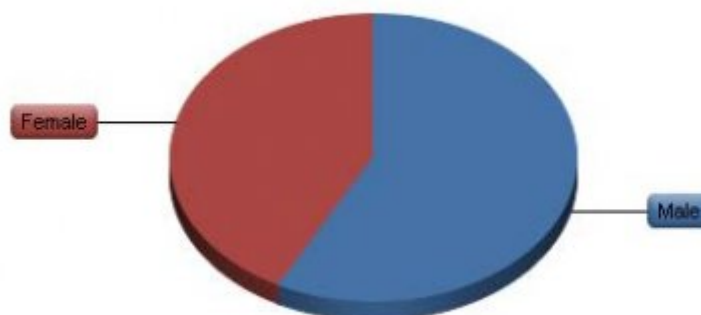


Figure 2:

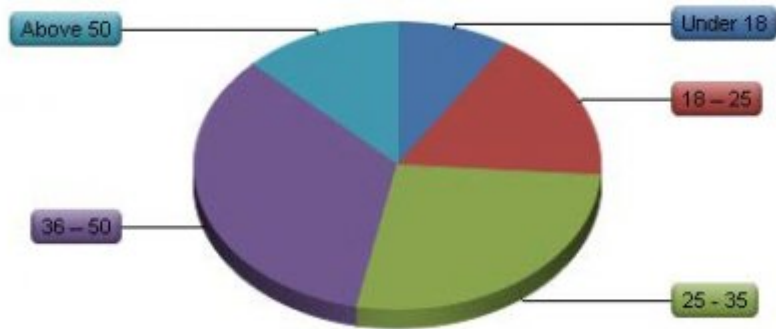


Figure 3:



Figure 4:



Figure 5:

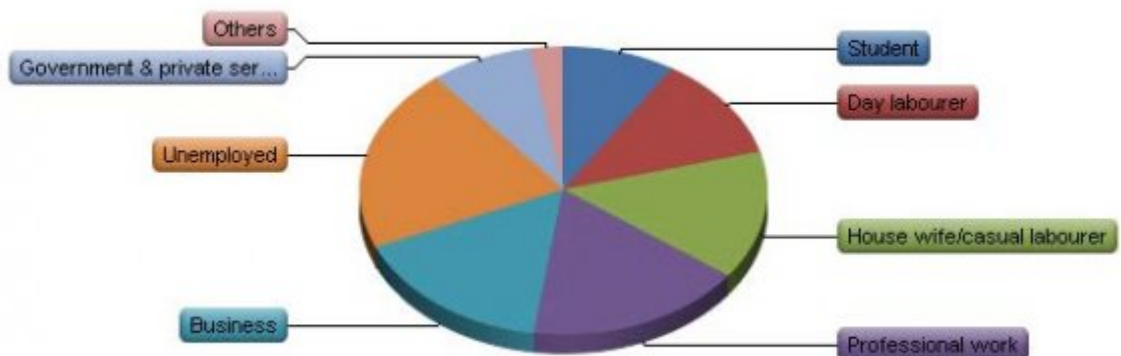


Figure 6:

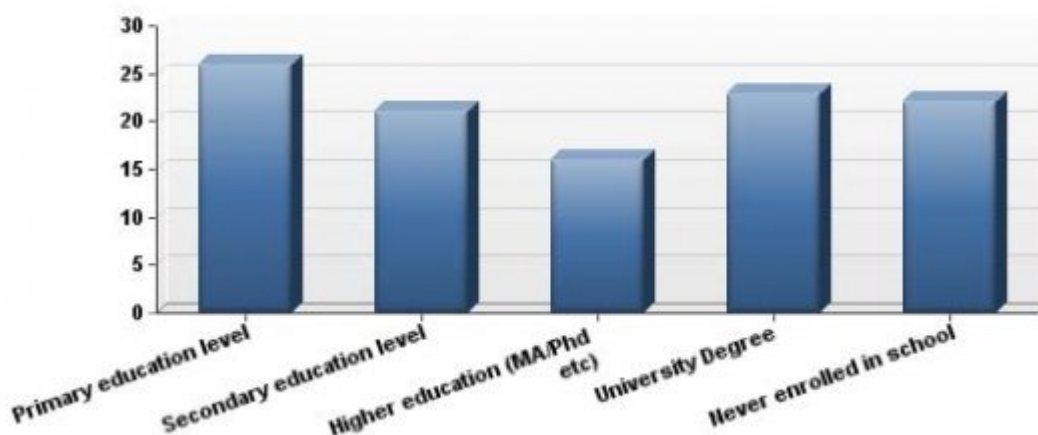
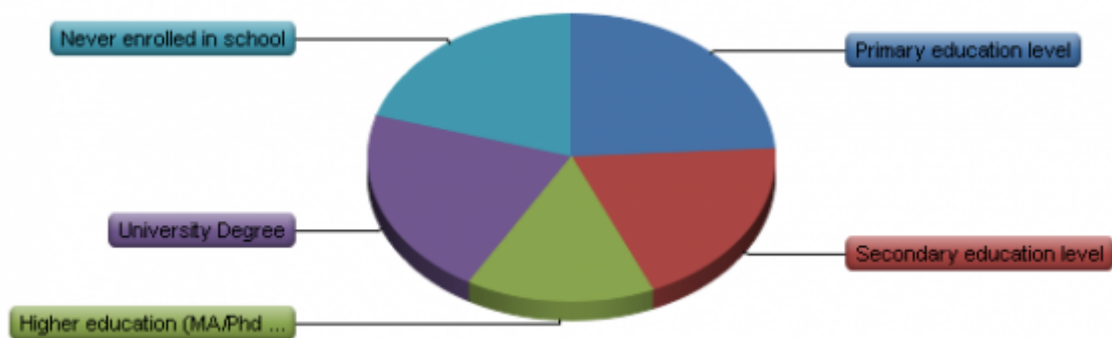


Figure 7:



20

Figure 8: Question 20 :

24

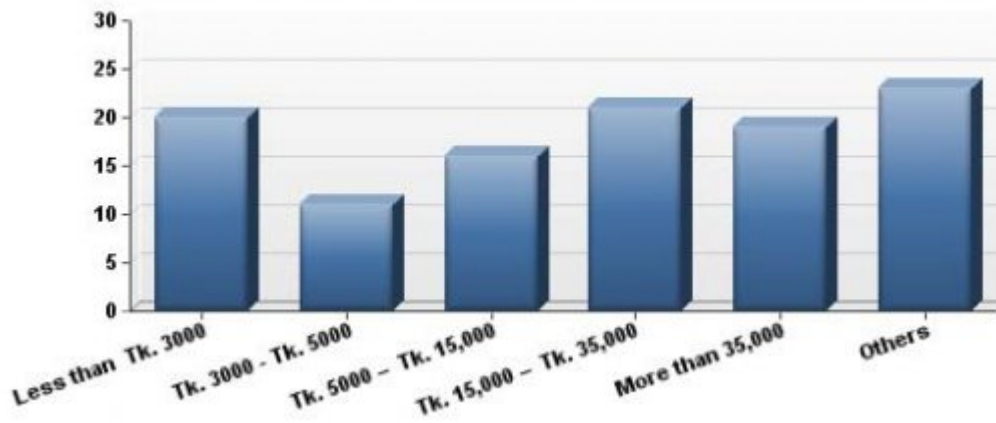


Figure 9: Question 24 :

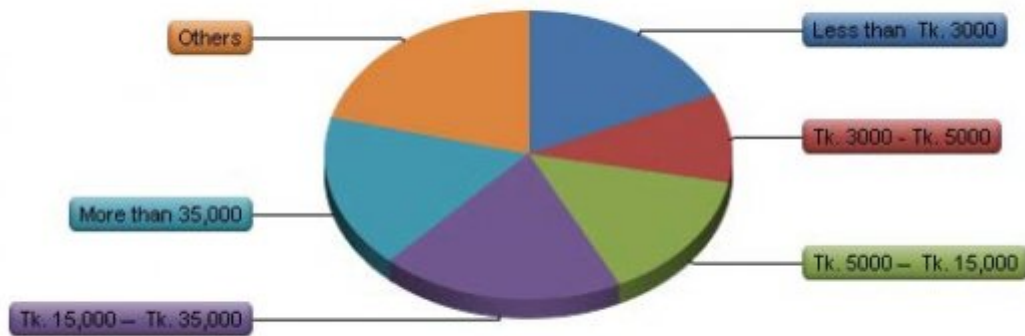


Figure 10:

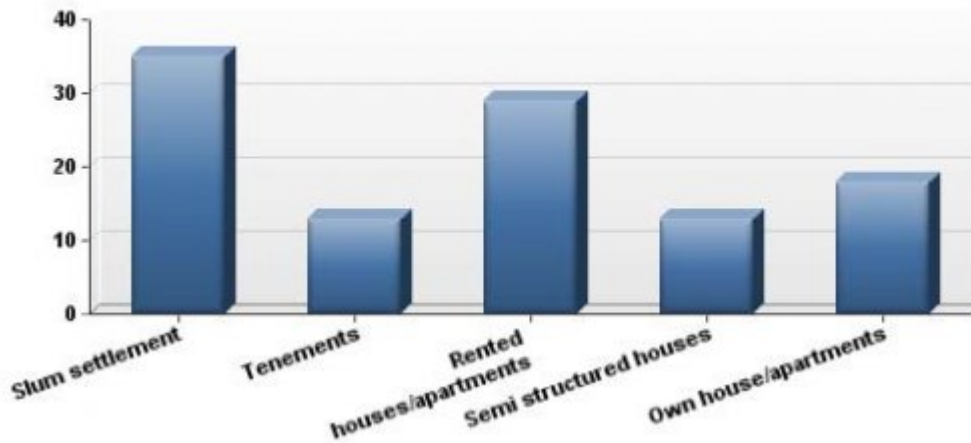


Figure 11:

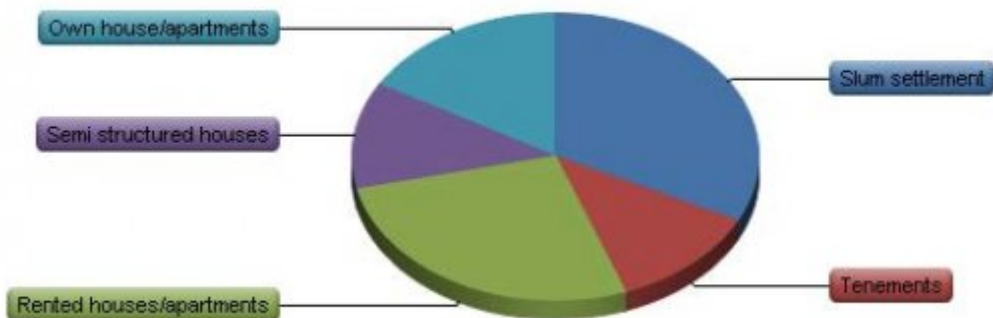


Figure 12:

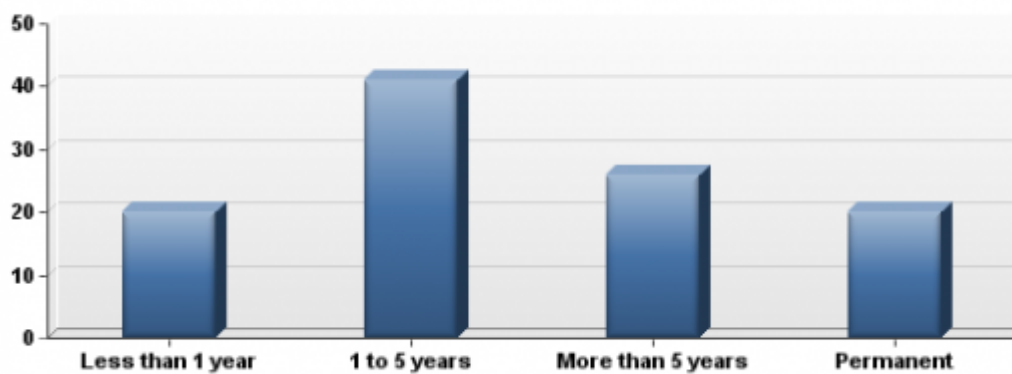


Figure 13:

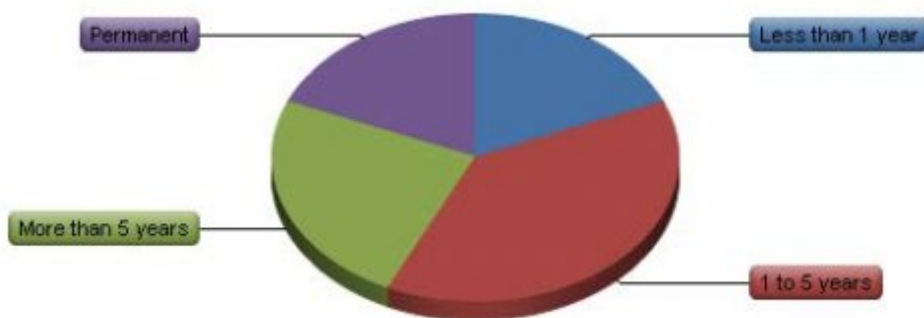


Figure 14:





Figure 15:

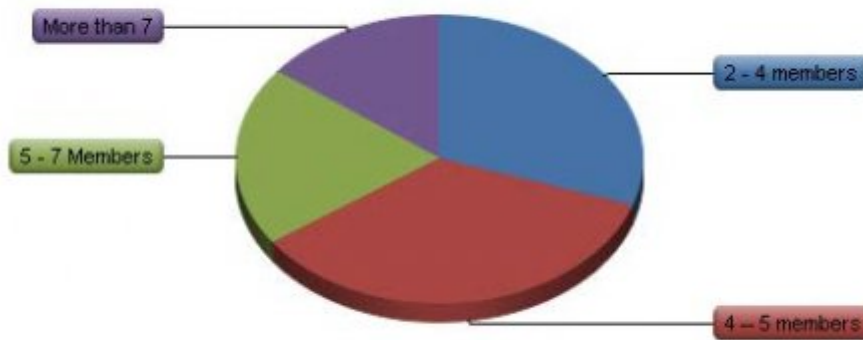


Figure 16:

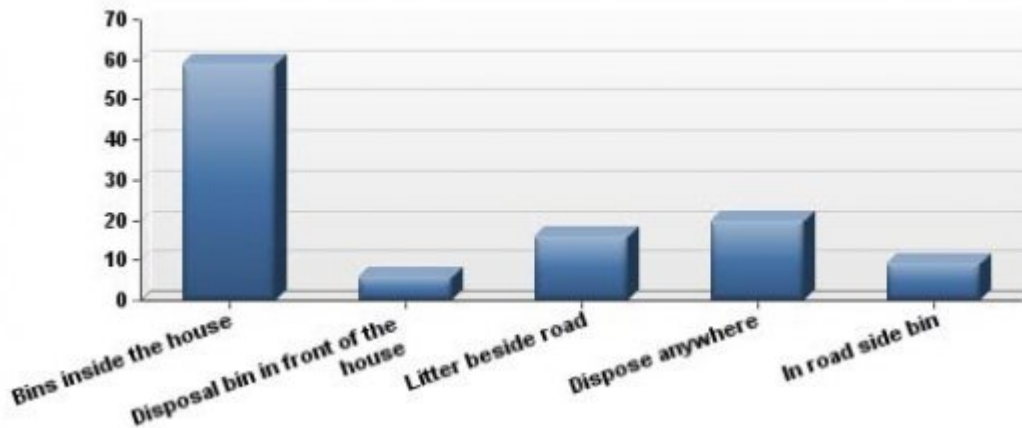


Figure 17:

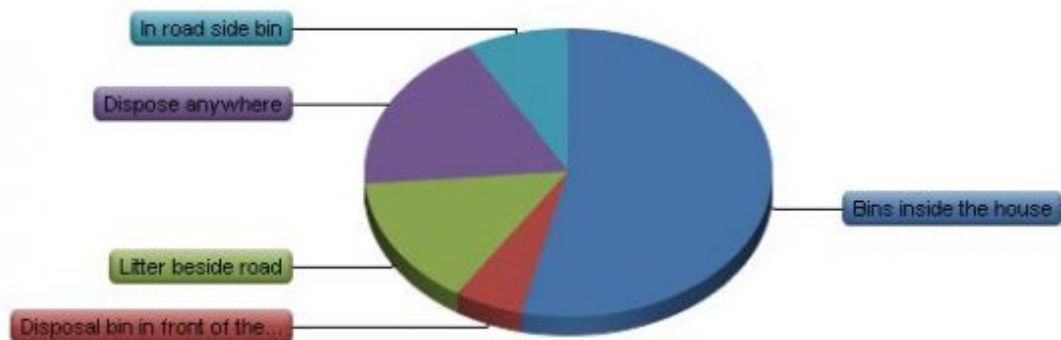


Figure 18:

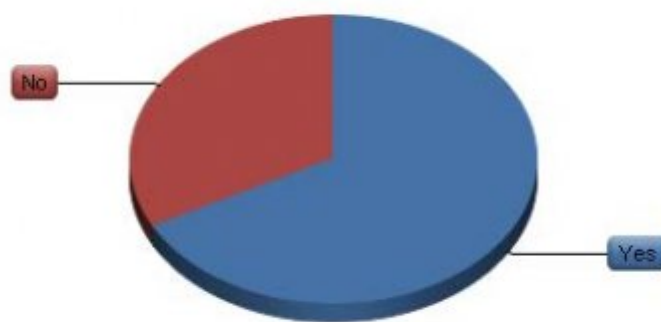


Figure 19:

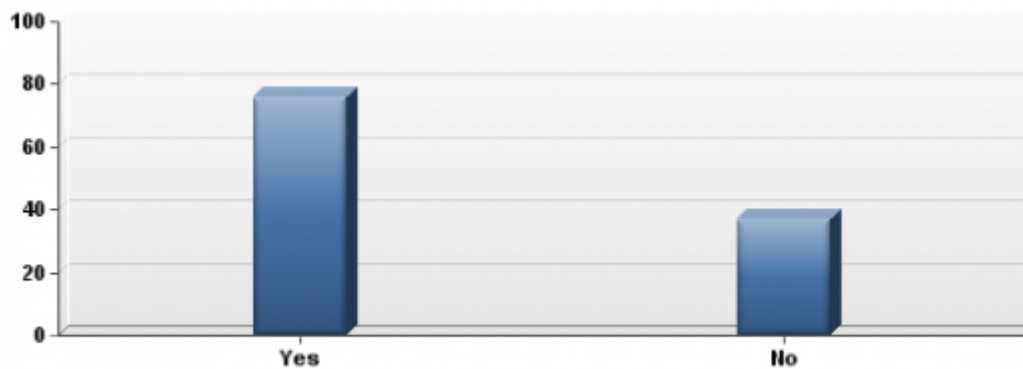


Figure 20:

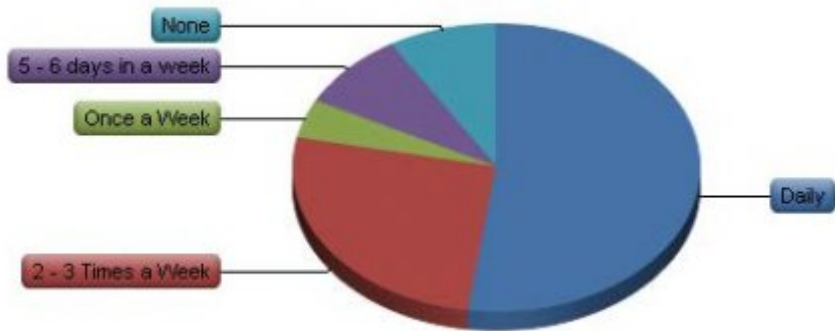


Figure 21:

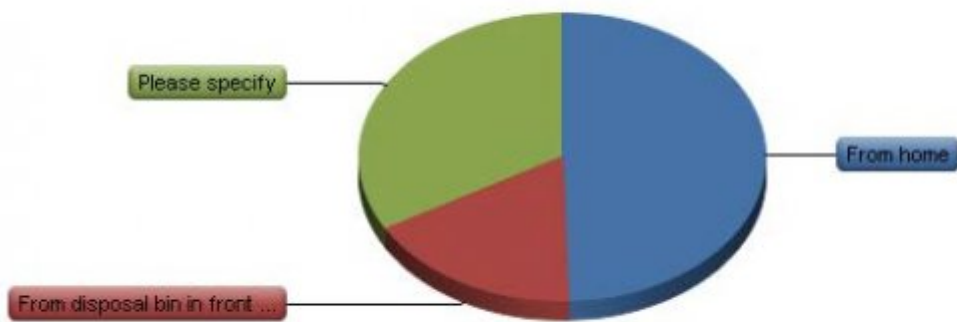


Figure 22:

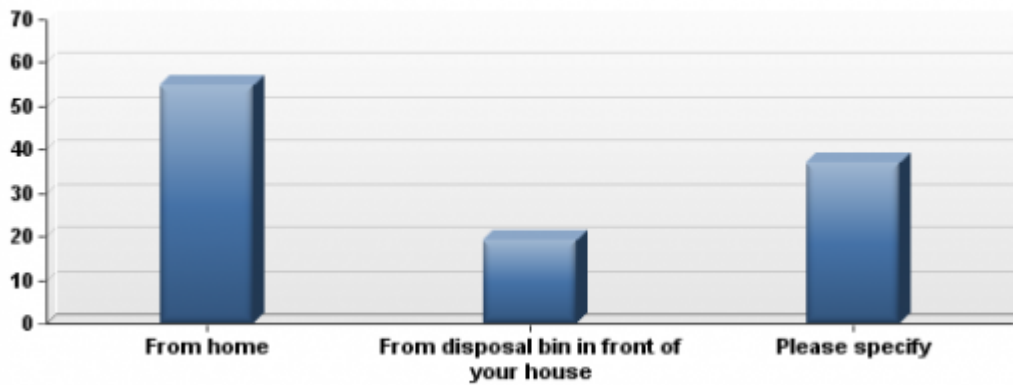


Figure 23:

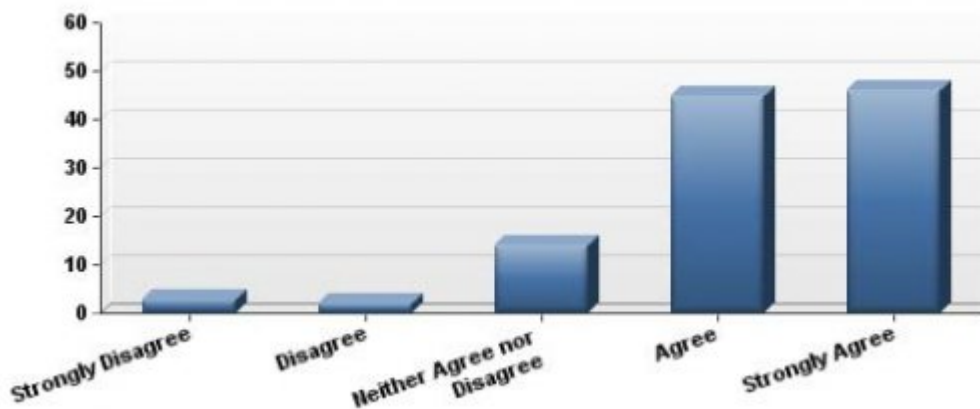


Figure 24:

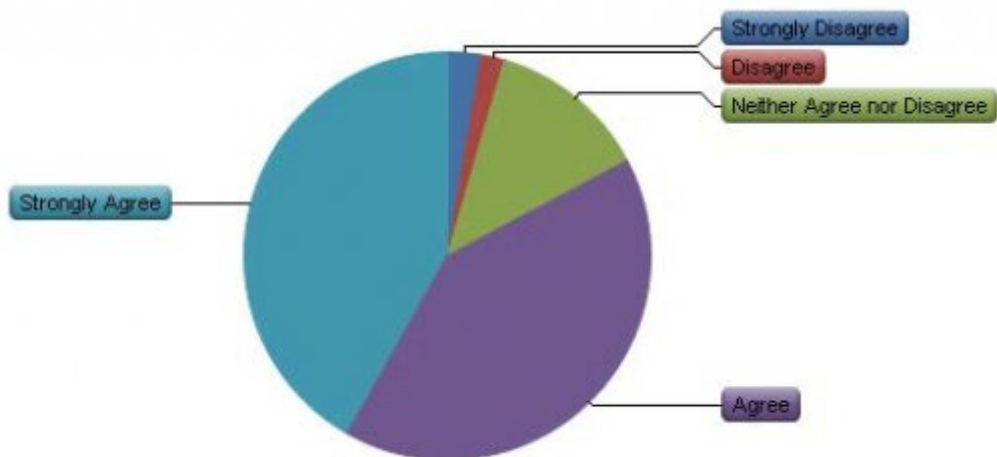


Figure 25:

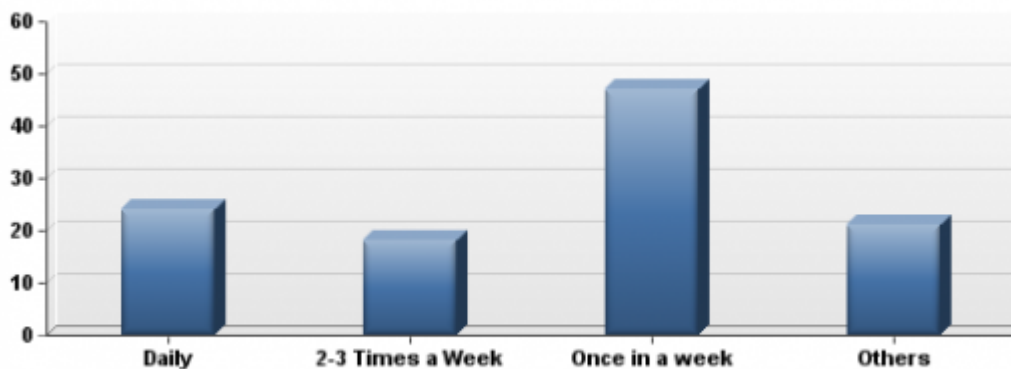


Figure 26:

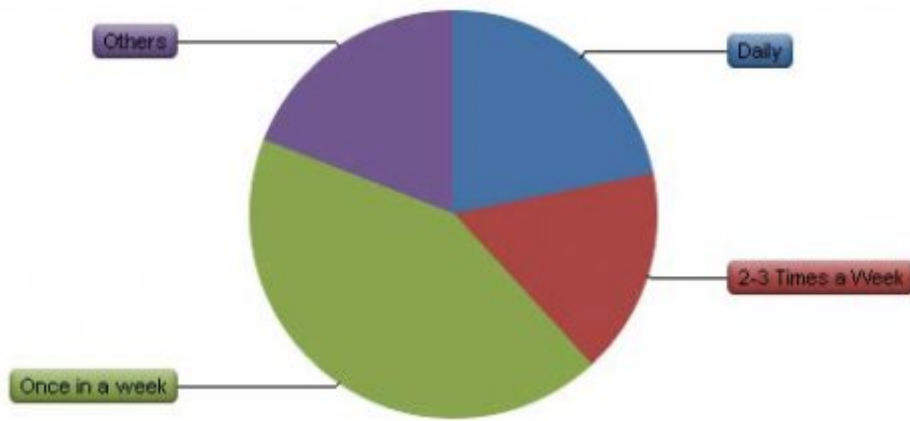


Figure 27:

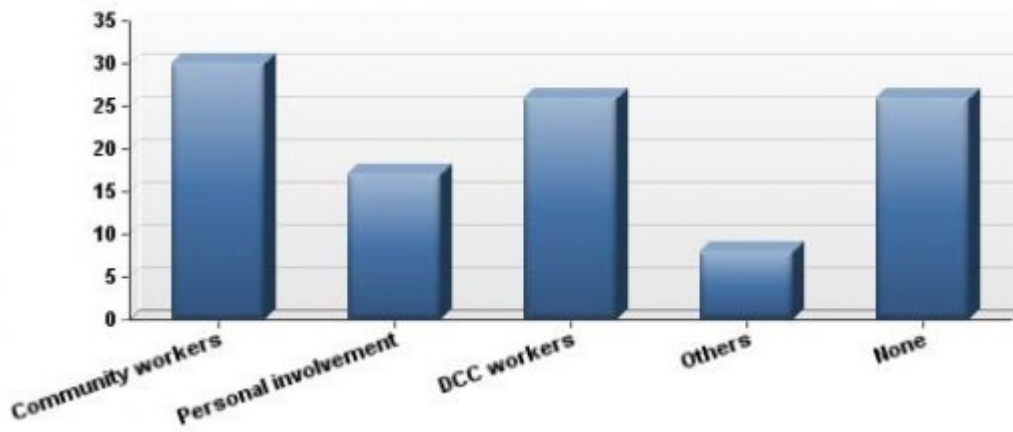


Figure 28:

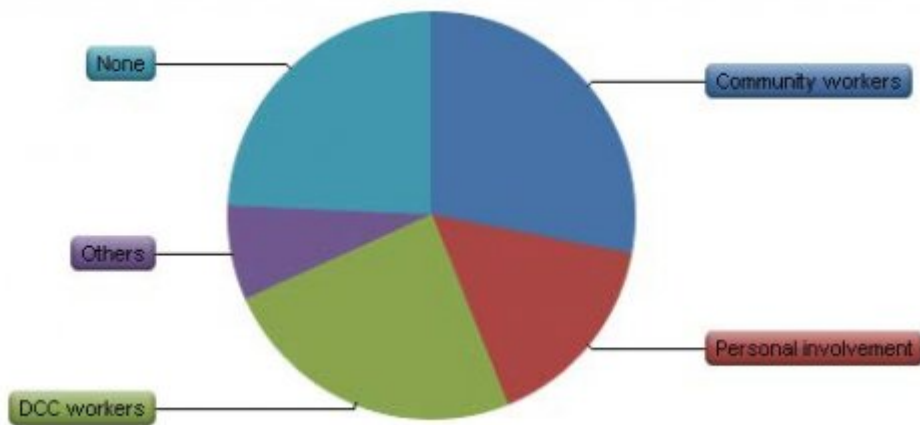


Figure 29:

| # | Answer    | Response | %    |
|---|-----------|----------|------|
| 1 | Under 18  | 10       | 9%   |
| 2 | 18 -25    | 19       | 17%  |
| 3 | 25 -35    | 30       | 27%  |
| 4 | 36 -50    | 38       | 34%  |
| 5 | Above 50  | 14       | 13%  |
|   | Total     | 111      | 100% |
|   | Statistic | Value    |      |
|   | Min Value | 1        |      |
|   | Max Value | 5        |      |
|   | Mean      | 3.24     |      |

Davis, M. B. (1989). Retrospective studies. Long-term studies in ecology: Approaches and alternatives, 71-89. Source: Song JW, Chung KC. Observational studies: cohort and case-control studies. *Plast Reconstr Surg.* 2010 Dec; 126(6):2234-2242. doi: 10.1097/PRS.0b013e3181f44abc. PMID: 20697313; PMCID: PMC2998589. Global Journal of Human Social Science -Year 2023 ( ) H Question 2: Please select your age category from the options below:

Figure 30: 44

|   | Variance                  | 1.33     |           |
|---|---------------------------|----------|-----------|
|   | Standard Deviation        | 1.15     |           |
|   | Total Responses           | 111      |           |
|   |                           |          | Year 2023 |
|   |                           |          | )         |
|   |                           |          | ( H       |
|   |                           |          | -         |
| # | Answer                    | Response | %         |
| 1 | Student                   | 10       | 9%        |
| 2 | Day labourer              | 13       | 12%       |
| 3 | Housewife/casual labourer | 16       | 14%       |
| 4 | Professional work         | 19       | 17%       |
| 5 | Business                  | 18       | 16%       |

© 2023 Global Journals

Question 3: What is your current occupation?

Figure 31: 45

| # | Answer                          | Response  | %    |
|---|---------------------------------|-----------|------|
| 1 | Primary education level         | 26        | 24%  |
| 2 | Secondary education level       | 21        | 19%  |
| 3 | Higher education (MA/PhD. Etc.) | 16        | 15%  |
| 4 | University Degree               | 23        | 21%  |
| 5 | Never enrolled in school        | 22        | 20%  |
|   | Total                           | 108       | 100% |
|   | Statistic                       | Min Value | 1    |
|   |                                 | Max Value | 5    |
|   |                                 | Mean      | 2.94 |
|   | Variance                        |           | 2.20 |
|   | Standard Deviation              |           | 1.48 |
|   | Total Responses                 |           | 108  |

)  
( H  
Social Science  
-

Question 5: What would be your average monthly income range (in BDT)?  
₳1=BDT118

Figure 32: 47

| Year | # | Answer                 | Response | %    |
|------|---|------------------------|----------|------|
| 2023 | 1 | Less than Tk. 3000     | 20       | 18%  |
| 48   | 2 | Tk. 3000 -Tk. 5000     | 11       | 10%  |
|      | 3 | Tk. 5000 -Tk. 15,000   | 16       | 15%  |
|      | 4 | Tk. 15,000 -Tk. 35,000 | 21       | 19%  |
|      | 5 | More than 35,000       | 19       | 17%  |
|      | 6 | Others                 | 23       | 21%  |
|      |   | Total                  | 110      | 100% |
|      |   | Statistic              | Value    |      |
|      |   | Min Value              |          | 1    |
|      |   | Max Value              |          | 6    |
|      |   | Mean                   |          | 3.70 |
|      |   | Variance               |          | 3.13 |
|      |   | Standard Deviation     |          | 1.77 |
|      |   | Total Responses        |          | 110  |

)  
( H  
-

Question 6: What type of housing do you live in?

Figure 33:

| # | Answer             | Response | %    |
|---|--------------------|----------|------|
| 1 | Less than 1 year   | 20       | 19%  |
| 2 | 1 to 5 years       | 41       | 38%  |
| 3 | More than 5 years  | 26       | 24%  |
| 4 | Permanent          | 20       | 19%  |
|   | Total              | 107      | 100% |
|   | Statistic          | Value    |      |
|   | Min Value          | 1        |      |
|   | Max Value          | 4        |      |
|   | Mean               | 2.43     |      |
|   | Variance           | 1.00     |      |
|   | Standard Deviation | 1.00     |      |
|   | Total Responses    | 107      |      |

Question 7: How long have you been a resident of this property?

Figure 34:

| # | Answer            | Response | %    | Statistic          | Value |
|---|-------------------|----------|------|--------------------|-------|
| 1 | Less than 1 year  | 20       | 19%  | Min Value          | 1     |
| 2 | 1 to 5 years      | 41       | 38%  | Max Value          | 4     |
| 3 | More than 5 years | 26       | 24%  | Mean               | 2.19  |
| 4 | Permanent         | 20       | 19%  | Variance           | 1.06  |
|   | Total             | 107      | 100% | Standard Deviation | 1.03  |
|   |                   |          |      | Total Responses    | 109   |

Figure 35: 51



| Statistic          |  | Value |  |
|--------------------|--|-------|--|
| Min Value          |  | 1     |  |
| Max Value          |  | 5     |  |
| Mean               |  | 2.22  |  |
| Variance           |  | 2.12  |  |
| Standard Deviation |  | 1.46  |  |
| Total Responses    |  | 110   |  |

| Year | 2023                               | Year     | 2023 |
|------|------------------------------------|----------|------|
| 52   |                                    | 53       |      |
| )    |                                    | )        |      |
| ( H  |                                    | ( H      |      |
| -    | # Answer                           | Response | %    |
| 1    | Bins inside the house              | 59       | 54%  |
| 2    | Disposal bin in front of the house | 6        | 5%   |
| 3    | Litter beside road                 | 16       | 15%  |
| 4    | Dispose of anywhere                | 20       | 18%  |
| 5    | In roadside bin                    | 9        | 8%   |
|      | Total                              | 110      | 100% |

members

Figure 36:

611 1 2 3 4 5 6 7 8 9 10 11 12 13 14

<sup>1</sup> McAllister, Jessica, "Factors Influencing Solid-Waste Management in the Developing World" (2015). All Graduate Plan B and other Reports.

<sup>2</sup> See, <https://dncc.gov.bd>

<sup>3</sup> See, [https://www.academia.edu/24448799/A\\_Case\\_Study\\_on\\_Dhaka\\_South\\_City\\_Corporation\\_DSCC](https://www.academia.edu/24448799/A_Case_Study_on_Dhaka_South_City_Corporation_DSCC)

<sup>4</sup> Singh, P. K., & Chudasama, H. (2020). Evaluating poverty alleviation strategies in a developing country. *PloS one*, 15(1), e0227176.

<sup>5</sup> See, What a Waste: An Updated Look into the Future of Solid Waste Management. <https://www.worldbank.org/en/news/immersive-story/2018/09/20/what-a-waste-an-updated-look-into-the-future-of-solid-wastemanagement>

<sup>6</sup> 7 In Book: Environmental Thoughts, Part-I, 2019 (

<sup>7</sup> pp. 80 -118) Edition: March-2019 Chapter: Municipal Solid Waste Management in Dhaka

<sup>8</sup> See, [https://education.nova.edu/Resources/uploads/app/35/files/arc\\_doc/mixed\\_methods.pdf](https://education.nova.edu/Resources/uploads/app/35/files/arc_doc/mixed_methods.pdf)

<sup>9</sup> A semi-structured interview is a qualitative research method used to gain an in-depth understanding of the respondent's feelings and beliefs on specific issues.

<sup>10</sup> Johnston, M. P. (2014). Secondary data analysis: A method of which the time has come. *Qualitative and quantitative methods in libraries*, 3(3), 619-626.

<sup>11</sup> NGO stands for non-governmental organization. Source: [ngosour ce.org](https://ngosour.ce.org)

<sup>12</sup> American Planning Association.(2002). APA Policy Guide on Solid and Hazardous Waste Management. Retrieved from <https://www.plan ning.org/policy/guides/adopted/wastemgmt.htm>

<sup>13</sup> See, Nuremberg Code. [https://research.unc.edu/human-researchethics/resources/ccm3\\_019064/](https://research.unc.edu/human-researchethics/resources/ccm3_019064/)

<sup>14</sup> Unveiling the Impact of Solid Waste Management on Health and Poverty Alleviation in Dhaka City

|   |  |          |     |      |           |
|---|--|----------|-----|------|-----------|
| 5 | Yes  | 76       | 68% |      |           |
| 6 | No   | 37       | 33% |      |           |
|   |  |          |     |      | Year 2023 |
|   |  |          |     |      | 55        |
|   |  |          |     |      | )         |
|   |  |          |     |      | ( H       |
|   |  |          |     |      | -         |
| # | Answer   | Response |     |      | %         |
| # | Answer   | Response | %   |      |           |
| 1 | Daily  |          | 12  |      | 52%       |
| 2 | 1 2 -3 Times a Week From home                              | 55       | 6   | 50%  | 26%       |
| 3 | 2 Once a Week From the disposal bin in front of your house | 19       | 1   | 17%  | 4%        |
| 4 | 3 5 -6 days a week Please specify                          | 37       | 2   | 33%  | 9%        |
| 5 | None Total   | 111      | 2   | 100% | 9%        |
|   | Total  |          | 23  |      | 100%      |
|   | Statistic  | Value    |     |      |           |
|   | Min Value  | 1        |     |      |           |
|   | Max Value  | 5        |     |      |           |
|   | Mean   | 1.96     |     |      |           |

suggesting a well-established waste management infrastructure in high income area. However, a significant proportion of respondents reported the of those who currently do not have access to waste disposal services. Question 11: If yes, how often does the waste picker collect waste from your household? mean value of 1.96, indicating that waste pickers Question 12: From where waste picker collects your household waste?

Figure 37:

Please specify  
 None  
 None  
 N/A  
 Road  
 roadside  
 N/A  
 No idea  
 no idea  
 No idea  
 Don't know  
 No idea  
 None  
 None

Year On my own None None Nowhere  
 2023

56 No None  
 None  
 no idea  
 no idea  
 None  
 N/A  
 roadside  
 None  
 roadside  
 None  
 N/A  
 None  
 None  
 no idea  
 None  
 ) None  
 ( Don't know  
 H

| Statistic          | Value |
|--------------------|-------|
| Min Value          | 1     |
| Max Value          | 3     |
| Mean               | 1.84  |
| Variance           | 0.81  |
| Standard Deviation | 0.90  |
| Total Responses    | 111   |

The statistical analysis revealed that the mean value was 1.84, with a minimum value of 1 and a maximum value of 3. The findings highlight the importance of establishing clear communication and understanding between households and waste pickers

| # | Answer                     | Response | %    |
|---|----------------------------|----------|------|
| 1 | Strongly Disagree          | 1        | 1%   |
| 2 | Disagree                   | 9        | 8%   |
| 3 | Neither Agree nor Disagree | 18       | 17%  |
| 4 | Agree                      | 48       | 44%  |
| 5 | Strongly Agree             | 33       | 30%  |
|   | Total                      | 109      | 100% |
|   | Statistic                  | Value    |      |
|   | Min Value                  | 1        |      |
|   | Max Value                  | 5        |      |
|   | Mean                       | 3.94     |      |
|   | Variance                   | 0.89     |      |
|   | Standard Deviation         | 0.94     |      |
|   | Total Responses            | 109      |      |

2023( ) H

Figure 39: 61

| Statistic       |                                   | Value |    |     |  |
|-----------------|-----------------------------------|-------|----|-----|--|
| Min Value       |                                   | 1     |    |     |  |
| Max Value       |                                   | 6     |    |     |  |
| Total Responses |                                   | 106   |    |     |  |
| Year 2023       |                                   |       |    |     |  |
| 63              |                                   |       |    |     |  |
| )               |                                   |       |    |     |  |
| ( H             |                                   |       |    |     |  |
| Global          |                                   |       |    |     |  |
| Journal of      |                                   |       |    |     |  |
| Human           |                                   |       |    |     |  |
| Social          |                                   |       |    |     |  |
| Science         |                                   |       |    |     |  |
| -               |                                   |       |    |     |  |
| 1               | Diarrheal diseases                | 83    | 29 | 78% |  |
| 2               | Chest complications               | 31    | 65 | 27% |  |
| 3               | Skin diseases                     | 16    |    | 29% |  |
| 4               | Abdominal Parasite Po-            |       |    | 61% |  |
| 5               | liomyelitis communicable diseases |       |    | 15% |  |
| 6               | Please Specify                    | 11    |    | 10% |  |
| Please Specify  |                                   |       |    |     |  |
| NAD/ Asthma     |                                   |       |    |     |  |
| Asthma          |                                   |       |    |     |  |
| Asthma          |                                   |       |    |     |  |
| NAD/Asthma      |                                   |       |    |     |  |

Question 18: Which age group in your family is most affected by communicable diseases related to waste?

Figure 40:

|                                    |   |                |        |
|------------------------------------|---|----------------|--------|
| -Social Science Year 2023 ( ) H 64 | Analysis and Findings Answer 1 0 -12 2 12     | Response 41    | % 39%  |
|                                    | -20 3 20 -35 4 35 -50 5 Over 50 6 All of them | 20 5 2 4 33    | 19%    |
|                                    | Total Statistic Min Value Max Value Mean      | 105 Value 1 6  | 5% 2%  |
|                                    | Variance Standard Deviation Question 19: #    | 3.07 4.79 2.19 | 4% 31% |
|                                    | Total Responses                               | 105            | 100%   |

Figure 41:

| # | Answer             | Response | %    | Year |
|---|--------------------|----------|------|------|
| 1 | Yes No             | 67 40    | 63%  | 2023 |
| 2 |                    |          | 37%  |      |
|   | Total              | 107      | 100% | 67   |
|   | Statistic          | Value    |      |      |
|   | Min Value          | 1        |      |      |
|   | Max Value          | 2        |      |      |
|   | Mean               | 1.37     |      |      |
|   | Variance           | 0.24     |      |      |
|   | Standard Deviation | 0.49     |      |      |
|   | Total Responses    | 107      |      |      |

H  
)  
(  
-

Figure 42:

| #         | Answer   | Response               | %    |
|-----------|--|------------------------|------|
| 1         | Once   | 31                     | 30%  |
| 2         | 2 to 3 times                                     | 34                     | 32%  |
| 3         | More than 3 times                                | 30                     | 29%  |
| 4         | Others   | 10                     | 10%  |
|           | Total  | 105                    | 100% |
| Year 2023 | Statistic Min Value Max Value Mean Vari-<br>ance | Value 1 4 2.18<br>0.94 |      |
| 68        | Standard Deviation                               | 0.97                   |      |
|           | Total Responses                                  | 105                    |      |

)  
( H  
Human Social  
Science -

Question 23: Can proper waste management effectively prevent such communicable diseases?

Figure 43:

| # | Answer             | Response | %    | Year |
|---|--------------------|----------|------|------|
| 1 | Yes                | 102      | 95%  | 2023 |
| 2 | No                 | 5        | 5%   |      |
|   | Total              | 107      | 100% |      |
|   | Statistic          | Value    |      |      |
|   | Min Value          | 1        |      |      |
|   | Max Value          | 2        |      |      |
|   | Mean               | 1.05     |      |      |
|   | Variance           | 0.04     |      |      |
|   | Standard Deviation | 0.21     |      |      |
|   | Total Responses    | 107      |      |      |

Figure 44: 69

612 //www.macrotrends.net/cities/20119/dhaka/population

613 [Choudhury ()] , S Choudhury . <https://www.epa.gov/sites/production/files/documents/newyorkcityswm.pdf> 2010. New York City. Solid Waste Management. Environmental Protection Agency

614

615 [Yousuf and Reza ()] ‘3R (Reduce, Reuse and Recycle) action plan for the city corporations in Bangladesh: paradigm shift of waste management to resource management’. T B Yousuf , A Reza . *Proceedings of International Conference on Solid Waste Management in the Developing Countries. Paper No* (, (International Conference on Solid Waste Management in the Developing Countries. Paper No () 2013. 122 p. .

616

617

618

619 [Zahur et al. ()] ‘7\_Solid\_waste\_management\_of\_Dhaka\_city\_public\_private\_community\_partnership Unveiling the Impact of Solid Waste Management on Health and Poverty Alleviation in Dhaka City 33’. M Zahur , T Ahsan , A U Zaman . [https://www.researchgate.net/publication/22835800\\_Solid\\_waste\\_management\\_of\\_Dhaka\\_city\\_public\\_private\\_community\\_partnership](https://www.researchgate.net/publication/22835800_Solid_waste_management_of_Dhaka_city_public_private_community_partnership), (Dhaka, Bangladesh) 2007. 2014. 4 p. . (: Users’ perspective)

620

621

622

623

624 [Bhuiyan ()] ‘A crisis in governance: Urban solid waste management in Bangladesh’. S H Bhuiyan . *Habitat international* 2010. 34 (1) p. .

625

626 [Dearnley ()] ‘A reflection on the use of semistructured interviews’. C Dearnley . *Nurse researcher* 2005. (1) p. 13.

627

628 [Yasmin and Rahman ()] ‘A review of solid waste management practice in Dhaka City, Unveiling the Impact of Solid Waste Management on Health and Poverty Alleviation in Dhaka City Bangladesh’. S Yasmin , M I Rahman . *International Journal of Environmental Protection and Policy* 2017. 5 p. .

629

630

631 [Vashi and Desai ()] ‘A review on recent advancement in solid waste management concept’. M P Vashi , K A Desai . *J. Environ. Eng. Stud* 2018. 3 (2) p. .

632

633 [Magaji and Dakyes ()] ‘An assessment of socio-economic impact of waste scavenging as a means of poverty alleviation in Gwagwalada’. J Y Magaji , S P Dakyes . *Abuja. Confluence Journal of Environmental Studies* 2011. 2011. 11 p. .

634

635

636 [Jerin et al. ()] *An overview of progress towards implementation of solid waste management policies in Dhaka*, D T Jerin , H H Sara , M A Radia , P S Hema , S Hasan , S A Urme , . . Quayyum , Z . 2022. (Bangladesh. Heliyon, e08918)

637

638

639 [Ashikuzzaman and Howlader ()] ‘An overview of solid waste management in Bangladesh: Current practices and challenges’. M Ashikuzzaman , M S Howlader . *Waste Management & Research* 2020. 38 (12) p. .

640

641 [APA Policy Guide on Solid and Hazardous Waste Management ()] *APA Policy Guide on Solid and Hazardous Waste Management*, <https://www.planning.org/policy/guides/adopted/wastemgmt.htm> 2002. American Planning Association.

642

643

644 [Jerin et al. ()] *Assessment of environmental and health impacts due to improper solid waste management in Dhaka City*, M Jerin , M M Rashid , S Hossain , A Haque . 2022. Bangladesh: Sustainable Cities and Society. 75 p. 103468.

645

646

647 [Ahsan et al. ()] ‘Assessment of municipal solid waste management system in a developing country’. A Ahsan , M Alamgir , M M El-Sergany , S Shams , M K Rowshon , N N Daud . *Chinese Journal of Engineering* 2014. 2014. (12a) p. .

648

649

650 [Dhaka ()] ‘Bangladesh Metro Area Population’. Dhaka . <https://www.macrotrends.net/cities/20119/dhaka/population> *MacroTrends*, 1950-2023.

651

652 [Giordano et al. ()] ‘Confidentiality and autonomy: The challenge (s) of offering research participants a choice of disclosing their identity’. J Giordano , M O’reilly , H Taylor , N Dogra . *Qualitative health research* 2007. 17 (2) p. .

653

654

655 [Davis ()] M B Davis . *Retrospective studies. Longterm studies in ecology: Approaches and alternatives*, 1989. p. .

656

657 [Azom et al. ()] ‘Environmental impact assessment of tanneries: a case study of Hazaribag in Bangladesh’. M R Azom , K Mahmud , S M Yahya , A Sontu , S B Himon . *International Journal of Environmental Science and Development* 2012. 3 (2) p. 152.

658

659

660 [Triassi et al. ()] ‘Environmental pollution from illegal waste disposal and health effects: A review on the ”Triangle of Death’’. M Triassi , R Alfano , M Illario , A Nardone , O Caporale , P Montuori . *International journal of environmental research and public health* 2015. 12 (2) p. .

661

662

663 [Connelly ()] ‘Ethical considerations in research studies’. L M Connelly . *Medsurg Nursing* 2014. 23 (1) p. .

664 [Dihan et al. ()] ‘Healthcare waste in Bangladesh: Current status, the impact of Covid-19 and sustainable management with life cycle and circular economy framework’. M R Dihan , S A Nayeem , H Roy , M S Islam , A Islam , A K Alsukaibi , M R Awual . *Science of The Total Environment* 2023. 871 p. 162083.

665

666

- 667 [Inclusive green growth: The pathway to sustainable development ( )] *Inclusive green growth: The pathway to*  
668 *sustainable development*, 10.1596/978-0-8213-9551-6. [https://elibrary.worldbank.org/doi/abs/](https://elibrary.worldbank.org/doi/abs/10.1596/978-0-8213-9551-6)  
669 [10.1596/978-0-8213-9551-6](https://elibrary.worldbank.org/doi/abs/10.1596/978-0-8213-9551-6) 2012. The World Bank.
- 670 [Who ( )] *Infectious agents and parasites for faecal-oral diseases*, Who . [https://www.who.int/water\\_](https://www.who.int/water_sanitation_health/diseases/fecaloraldis/en/)  
671 [sanitation\\_health/diseases/fecaloraldis/en/](https://www.who.int/water_sanitation_health/diseases/fecaloraldis/en/) 2012.
- 672 [Kothari ( )] C R Kothari . *Research methodology: Methods and techniques*. New Age International, 2004.
- 673 [Saifullah and Islam ( )] ‘Municipal solid waste (MSW) management in Dhaka City’. A Z A Saifullah , M T Islam  
674 . *Bangladesh. American Journal of Engineering Research* 2016. 5 (2) p. .
- 675 [Hasan and Chowdhury] *Municipal solid waste management and environmental hazards on Bangladesh*, G M J  
676 Hasan , A I Chowdhury . *Asian Journal of Water, Environment and Pollution*.
- 677 [Prodhan and Kaeserb ( )] *Municipal Solid Waste Management in Dhaka City: Present Status, Problems, and*  
678 *Probable Solutions-A Review*, A S U Prodhan , A Kaeserb . 2019. (book: Environmental Thoughts, Part-I)
- 679 [Kabir ( )] ‘Municipal solid waste management system: a study on Dhaka north and South City corporations’. M  
680 R Kabir . *Bangladesh Inst. Plan* 2015. 2075. p. 9363.
- 681 [Doe ( )] *National 3R Strategy for Waste Management*. Ministry of Environment and Forest government of the  
682 *People’s Republic of Bangla desh*<https://faolex.fao.org/docs/pdf/bgd190976.pdf> 2010.
- 683 [Williamson ( )] ‘Questionnaires, individual interviews and focus groups’. C Williamson . *Research methods:*  
684 *Information, systems, and contexts*, 2013. Tilde University Press. p. .
- 685 [Johnston ( )] ‘Secondary data analysis: A method of which the time has come’. M P Johnston . *Qualitative and*  
686 *quantitative methods in libraries* 2014. 3 (3) p. .
- 687 [Shrinking resource base and worsening living conditions weaken the productive capacity of the poor ( )]  
688 *Shrinking resource base and worsening living conditions weaken the productive capacity of the poor*,  
689 <https://www3.epa.gov/poverty/> 2002. US Environmental Protection Agency.
- 690 [Singh et al. ( )] ‘Smart technological options in collection and transportation of municipal solid waste in urban  
691 areas: A mini review’. D Singh , A K Dikshit , S Kumar . *Waste Management & Research* 2023. p. .
- 692 [Solid Waste Management in Dhaka ( )] *Solid Waste Management in Dhaka*, [http://www.ccacoalition.](http://www.ccacoalition.org/sites/default/files/SWM_in_Dhaka_Bangladesh_2012.pdf)  
693 [org/sites/default/files/SWM\\_in\\_Dhaka\\_Bangladesh\\_2012.pdf](http://www.ccacoalition.org/sites/default/files/SWM_in_Dhaka_Bangladesh_2012.pdf) 2012. Climate and Clean Air  
694 Coalition.
- 695 [Haque and Alam ( )] ‘Solid waste management in Dhaka, Bangladesh: Problems and prospects’. M E Haque , K  
696 Alam . 10.1177/0734242X12452928. *Waste Management & Research* 2012. 30 (6) p. .
- 697 [Ashikuzzaman and Howlader ( )] *Sustainable solid waste management in Bangladesh: issues and challenges.*  
698 *Sustainable waste management challenges in developing countries*, M Ashikuzzaman , M H Howlader . 2020.  
699 p. .
- 700 [Japan International Cooperation Agency. ( )] *The study on the solid waste management in Dhaka city*, Japan  
701 International Cooperation Agency. . 2005. Dhaka City Corporation (DCC-JICA report) (The People’s  
702 Republic of Bangladesh)
- 703 [Trends in Human Development Index Human Development Reports ( )] ‘Trends in Human Development In-  
704 dex’. <https://hdr.undp.org/data-center/human-development-index#/indicies/HDI> *Human*  
705 *Development Reports* 1990-2021. August 8, 2012. (United Nations.)
- 706 [Enayetullah et al. ( )] *Urban solid waste management scenario of Bangladesh: Problems and prospects*, I  
707 Enayetullah , A H M M Sinha , S S A Khan . 2005. Waste Concern Technical Documentation.
- 708 [Islam ( )] ‘Urban waste management in Bangladesh: an overview with a focus on Dhaka’. S Islam . *Proceedings of*  
709 *the 23rd ASEF Summer University ASEF Education Department, Virtual*, (the 23rd ASEF Summer University  
710 ASEF Education Department, Virtual) 2021. p. 20.
- 711 [Undp ( )] *Voices from the Slums: Challenges and Opportunities for Economic Participation in Urban Bangladesh”*  
712 *by the United Nations Development Programme*, Undp . 2013.
- 713 [Saqib ( )] *Waste Disposal & Management In Dhaka North City Corporation (Doctoral dissertation*, M Saqib .  
714 2018. Bangladesh University of Engineering and Technology
- 715 [Waste Types ( )] *Waste Types*, [https://www.epa.gov/siting-pollution-control-and-cleanup/](https://www.epa.gov/siting-pollution-control-and-cleanup/waste-types)  
716 [waste-types](https://www.epa.gov/siting-pollution-control-and-cleanup/waste-types) 2013. U.S. Environmental Protection Agency
- 717 [Hoornweg (2012)] *What a Waste : A Global Review of Solid Waste Management*, D Hoornweg . <https://openknowledge.worldbank.org/entities/publication/1> 2012. March 1. (a464650-9d7a-58bb-  
718 b0ea-33ac4cd1f73c)
- 719
- 720 [Silpa (2018)] *What a Waste: An Updated Look into the Future of Solid Waste Management*,  
721 Kaza Silpa . [https://www.worldbank.org/en/news/immersive-story/2018/09/20/](https://www.worldbank.org/en/news/immersive-story/2018/09/20/what-a-waste-an-updated-look-into-the-future-of-solid-waste-management)  
722 [what-a-waste-an-updated-look-into-the-future-of-solid-waste-management](https://www.worldbank.org/en/news/immersive-story/2018/09/20/what-a-waste-an-updated-look-into-the-future-of-solid-waste-management) 2018. 2018,  
723 September 20. World Bank.



---

724 [Wilson et al. ()] D C Wilson , L Rodic , P Modak , R Soos , A Carpintero , K Velis , . . Simonett , O . *Global*  
725 *waste management outlook*, 2015. UNEP.

726 [World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects World Medic  
727 'World Medical Association Declaration of Helsinki: ethical principles for medical research involving human  
728 subjects'. *World Medical Association* 2013. (20) p. . (Jama)