

Waste Management in Dhaka City: Exploring Domestic Recycling

Md. Tanvir Alam*
Sabrina Afrin Tonny**

Abstract

The phenomenon of waste Management can be traced back to early civilization. At present it is highly associated with urban planning, such as SDG 11. Being one of the most polluted cities, Dhaka was supposed to offer more effective waste management system; unfortunately, the scenario is exact opposite. Unlike waste management, domestic recycling is a fully personal civil responsibility towards nature and society. The objective of this study is two-fold, first to understand the degree of awareness of residents of Dhaka city pertaining to Domestic Recycling, and to what degree they are contributing to it. This is a cross sectional study where primary source of data has been used, collected using mixed method tool. A semi-structured questionnaire has been developed using Likert Scale; A sample size of 20 family/unit has been selected from each 10 ward of Dhaka Zone. Stratified sampling style has been used for this study. The questionnaire was delivered and collected using Google form. Then the data was analyzed using content analysis to find out the research question. The study revealed that the degree of awareness of exercising domestic resource of residents of Dhaka Zone-3 is below average, and only 10% resident contribute to domestic recycling process.

Keywords: Waste Management, Domestic Recycling, Awareness, Dhaka City

Introduction

On 22nd April 2022, the entire world celebrated the Earth Day, cities around the world facilitated workshop, conference, symposium and program (Miller, 2018) on that same day Dhaka city generated 646 tons of waste (Correspondent, 2021). Waste generation has always been a part and parcel of civilization; however, waste management is something which can be relate with development and modernization of civilization. Waste management refers to the disposal and recycling of waste.

* Adjunct Faculty, Department of Public Administration, Stamford University Bangladesh, ORCID: <https://orcid.org/0000-0002-3466-808X>

** Research Assistant, Liberation War Museum. Agargaon, Dhaka, Bangladesh, E mail- sabrinatonny21@gmail.com

Waste Management in Dhaka City: Exploring Domestic Recycling

Furthermore, efficient waste management strategies must be used while keeping the environment in mind. There are different methods and procedures for disposing of waste, for example. Landfills, recycling, and composting are only a few examples. Furthermore, these approaches are quite beneficial in disposing of waste without harming the environment. Based on their physical appearance, wastes are divided into distinct categories. Solid wastes are solid, liquid wastes are liquid, and organic wastes are organic wastes. The recycling process becomes more complicated as a result of this disparity. After 45 years as a Least Developed Country (LDC), Bangladesh has begun a new journey as a developing country. In its final examination on Friday, the United Nations Committee on Development Policy (UN CDP) recommended graduation. Bangladesh is set to become a developing country in 2026, after a UN committee suggested that the country be given five years instead of three to prepare for the transition because to the economic impact of the Covid-19. In June, the suggestions will be given to the UN Economic and Social Council (ECOSOC) for approval, and the idea is expected to be approved by the UN General Assembly in September (). However there is a lot of preparations needs to be maintained before the endeavor, among them management of solid waste hold serious significance, because since the inception of Bangladesh as an Independent nation. The trends of development of Bangladesh have always been revolved around Urban centers, and naturally Urban Centers generates comparatively more waste than rural center. As Dhaka city is known as mostly populated mega city, it produces large amount of waste, thus it is important to have clear understanding how the population of Dhaka city perceives domestic recycling and how they contribution to it (Mirdha, 2021).The objective of this study is two-fold, first to understand the degree of awareness of residents of Dhaka city pertaining to Domestic Recycling, and to what degree they are contributing to it.

Literature Review

In common parlance waste management means to the disposal and recycling of waste. Furthermore, efficient waste management strategies must be used while keeping the environment in mind. Amasuomo (2016) argues that “the concept of waste is highly subjective as one man’s wastes is a resource to another” making the notion around waste and management of waste highly impactful as something identified as waste can be valuable to someone else, which makes the management of waste as of serious work.

Waste management

A report submitted to World Bank by Hoornweg after analyzing the overall trends in Asia's solid waste management and trash management in

urban settings. The paper examines the trends and makes some early recommendations for mitigating their effects. It suggested that Solid waste management is one service that nearly every local government offers to its citizens. Solid waste management is perhaps the most significant municipal function and serves as a requirement for other municipal actions, despite the fact that service levels, environmental implications, and costs vary dramatically. The volume of municipal solid waste (MSW), one of the most important by-products of an urban lifestyle, is growing even faster than the rate of urbanization as the globe rushes toward its urban future; touching and influencing all mega cities around the world and the rate of waste generation will not decrease any time sooner (2014) and Dhaka city is no exception to that.

In research from Reno (2015) Waste is more than just a symptom of an all-too-human craving for meaning, or a purely technical concern for sanitary engineers and public health officials, according to studies. The afterlife of waste materials and waste management processes reveals the importance of transient and discarded things for materiality and ontology, marginal and polluting labor and environmental justice movements, as well as critiques of modernity's exploitation and deferred promises, as well as critiques of imperial formations. More waste will inform us, especially as more studies continue to chronicle the various ways that our wastes are intertwined with the lives of other beings and the destiny of the world we share.

A popular book Oweis and Khera, (1990) deals with waste management's geotechnical issues, with a focus on municipal and hazardous wastes. The descriptions of waste forms and the regulations that regulate their disposal, site selection, site assessments, and the geochemical features of soils are all covered in the chapters, The design of waste disposal facilities, as well as the assessment of health risks and safety concerns, are all addressed. It focuses on important aspects of waste management.

While Wilson (2007) Identifies six key kinds of waste management development drivers. In the nineteenth century, public health drove the development of structured garbage collecting systems, and it continues to be a driving force in emerging countries. In the 1970s, environmental protection became a priority, with an initial focus on eliminating uncontrolled disposal, followed by a gradual increase in technical standards. Today, developing countries appear to be failing to take these first steps, with climate change emerging as a major factor. The resource value of garbage, which allows people to create a living from wasted items, has long been a driving force in poor countries and continues to be so today. He also finds out In industrialized countries, a

Waste Management in Dhaka City: Exploring Domestic Recycling

recent tendency is to close the loop, moving away from the concept of "end-of-pipe" waste management and toward more comprehensive resource management is approaching. Institutional and responsibility issues, as well as public awareness, are two underlying groupings of drivers. There is no single driver for waste management development: the balance between these six sets of drivers has shifted over time, and it will continue to shift between countries based on local circumstances, and between stakeholders based on their perspectives.

In a new research the writers provide an in-depth look at all elements of trash disposal and management. They use a variety of real-life examples to demonstrate these points. A comparison of rules in the United States, Canada, and Japan, as well as a review of federal and state environmental legislation in the United States, as well as case studies such as Recycling Hawaii and barge wastes, have all been included. According to them, proper waste management has a significant impact on the local and national communities.

In another study exploring the waste management concept, waste management concept, waste management system, biomass and bio-waste resources, waste classification, and waste management methods the author Demirbas (2011) argued that

the collection, transport, processing, recycling or disposal of waste products, as well as their monitoring, are all part of waste management. Collection, transportation, pre-treatment, processing, and ultimate residue abatement are all part of a typical waste management system. The waste management system encompasses all actions involving the handling, treatment, disposal, or recycling of waste materials. It's tough to classify wastes in general. Domestic wastes, commercial wastes, ashes, animal wastes, biomedical wastes, construction wastes, industrial solid wastes, sewage, biodegradable wastes, non-biodegradable wastes, and hazardous wastes are some of the most prevalent waste sources.

There is no denying that waste management is important, however the associated anger with waste management is often overlooked, Carden (1985) demonstrated the angers lies with waste management , he categorized Radioactive, infectious, and chemical wastes are the three types of hazardous waste. Infectious waste management almost generally entails treatment, but radioactive waste management frequently entails secure storage. Chemical waste management is a complicated mix of treatment and storage. The remainder of this chapter focuses on the issues and management strategies related with each waste category.

Waste Management in Dhaka City

Municipal Solid Waste Management (MSWM) is one of the most serious environmental issues in Dhaka, Bangladesh's capital. Every day, over 646

tons of rubbish is created in Dhaka, of which only about half is adequately collected and deposited. As a result, a massive volume of garbage is mistreated every day.

The study of Hassan et al. (2008) aims to document waste handling practices (e.g. collection, storage, transportation, and disposal) as well as the types and amounts of waste generated by Health Care Establishments (HCE). Their findings show that improper medical waste management in Dhaka City is caused by a lack of awareness, appropriate policy and laws, and willingness. A newly built medical waste disposal system presently serves a small number of HCE, their study reveals that Medical waste is infectious and dangerous. It causes substantial health risks to the environment and necessitates specialized treatment and management before being disposed of. With a growing number of hospitals, clinics, and diagnostic laboratories in Dhaka City, Bangladesh, the problem is getting worse. However, there has been very little research done on this essential problem, and there is a severe lack of data for planning.

according to the research. In Dhaka City, new facilities for the comprehensive management of medical waste should be built.

Bangladesh is a developing country with a dense population. In this country, the rate of urbanization is increasing by the day. Dhaka is one of the world's most densely populated cities. As a result, there are significant environmental issues. Dhaka's waste problem is prevalent. Large amounts of garbage are produced as a result of overpopulation and excessive consumerism. Waste management is one of Dhaka City Corporation's most pressing and significant issues. A article by Tania (2014) looks at a variety of important facts about waste management, as well as how to employ new technology to improve the waste management system. This study proposes that by working together, we can conserve the environment while simultaneously benefiting financially. Recycling waste also helps to minimize greenhouse gas emissions. Recycling garbage reduces the amount of energy required for new production while also lowering carbon dioxide emissions into the atmosphere.

One of the most pressing and critical environmental issues facing municipal governments in developing Asian countries is urban solid waste management. Although municipal authorities recognize the significance of sufficient solid waste collection and disposal, as well as resource recovery and recycling, dealing efficiently with the growing volume of solid trash generated by expanding cities is often beyond their resources. As a result, solid garbage is deposited indiscriminately on highways and into open sewers, posing a significant health danger and degrading the living environment for millions of city dwellers. However, in the recent decade, the relevance of community participation in solid

Waste Management in Dhaka City: Exploring Domestic Recycling

waste management and the application of adaptive technology for enhancing the solid waste management system has been recognized (Zahur, 2007).

Afroz and Tudin (2010) after Interviewing with 402 respondents in Dhaka city yielded data on garbage creation, socioeconomic characteristics, and household desire to separate waste. The primary characteristics that might influence household garbage generation were determined using ordinary least square regression. The findings revealed that household garbage generation in Dhaka city was highly influenced by household size, income, environmental concern, and readiness to separate waste. These elements are required to effectively increase waste management, growth, and performance, as well as to reduce domestic trash environmental damage.

One year earlier the study by Afroz et al (2009) using the contingent value method was used to evaluate the respondents' willingness to pay to enhance the waste collection system in Dhaka, Bangladesh. The objective of this study was to see how WTP differed between respondents who got door-to-door rubbish collection and those who didn't. People were directly asked about their willingness to pay an additional garbage collection service charge to support the costs of a new waste management project as part of the research. Residents of communities that received waste collection service had a greater mean WTP than those who did not, although the difference was not statistically significant. The responders in Dhaka city had a combined WTP of 7.6 million Taka (USD0.1 million)

Polprasert (2007) in his book demonstrated that how organized effort in combination with practices of technologies led the control of pollution originating from organic wastes.

To lessen the environmental impact of garbage deposition in landfills and burning at incinerator plants, various governments throughout the world have planned to significantly boost home waste recycling by the turn of the millennium. To address this issue, additional trash recycling facilities will be created, and the number of garbage sorting and recycling personnel will progressively expand over the next decade. Several studies have confirmed that workers at trash sorting and recycling companies are exposed to airborne microbes and their hazardous compounds, which are key factors in a variety of health problems. It is also suggested that when establishing such OELs, consideration should be given to a number of technical issues that have received insufficient attention, including average versus peak airborne exposure, total versus inhalable aerosol exposure, microbial viriability, viable versus total microorganisms, and static area air sampling versus personal air sampling. Furthermore, when establishing OELs for exposures at trash sorting and recycling operations,

synergistic interactions between the multiple components of the bioaerosol exposure as well as individual susceptibility may be important (Poulsen et al., 1995)

While in western countries, English policymakers continue to be perplexed by a looming trash disposal problem, as well as a lack of significant public engagement in the preferred alternative to disposal, recycling. A paper by Smallbone, (2005) finds that past efforts to increase recycling have been based on an implied model of consumer recycling behavior that is not supported by what happens in practice, based on both a literature review across a wide range of disciplines and a national survey of consumer attitudes toward their own participation in recycling. The paper approaches the waste and recycling problem from a different perspective by detaching thinking about recycling behavior from academic thinking about green consumerism. It indicates that research into the personal values of recyclers could be used in marketing communications to demonstrate how recycling fulfills these values. By focusing more marketing attention on those who already claim to recycle and assisting them with better communication and practical assistance, substantially higher levels of reclaimed materials could be achieved.

The Ministry of the Environment launched a waste minimization policy in 1990. By 1995, housing estates had 1,313 trash recycling centers and other trial recycling initiatives. Despite some positive early results from residents in pilot initiatives, studies from a two-year-old recycling project in a public housing estate suggest limited involvement (Seik, 1997).

Domestic wastewater recycling is still in its early stages, hence there is a scarcity of credible information about the nature of grey water and the various recycling technologies available. Due to a lack of water quality standards and a lack of awareness of the nature of grey water, a plethora of recycling methods have been developed. The report compares and contrasts the various choices and describes the current situation in the United Kingdom (Jefferson et al, 2000)

Domestic Recycling in Dhaka city

When it comes to Domestic Recycling in Dhaka city, a polar study by () reveals that Food waste is the most seasonably variable element in the municipal solid waste stream. Residential garbage is quite uniform. Although garbage generation varies depending on demographic and other local conditions, most homes dispose of waste in essentially the same way. The content of garbage varies depending on income levels and the type of source. Variation can also be seen depending on the level of source reduction and recycling options. Because there are potential to

Waste Management in Dhaka City: Exploring Domestic Recycling

recycle waste, recycling facilities may need to expand at a similar rate to waste generation. Physical and chemical features of solid waste are significant for selecting resource and energy recovery potentials when implementing a waste disposal and management plan (Yousuf & Rahman, 2007).

In research from Matter et al. (2015) Mismanagement of solid trash in Dhaka, Bangladesh, exemplifies a well-known market failure that can be stated as follows: waste is a resource in the wrong place. Inorganic materials such as plastic and paper can be used to meet the industrial sector's requirement for recycled materials. Organic resources can be converted and utilised in the agricultural sector, which is currently heavily reliant on artificial fertilizers due to nutritional deficiency. They're also a source of sustainable energy in the form of biogas for this energy-scarce country, which is reliant on depleting natural gas supplies and increasing coal imports.

The generation and quality of greywater in Dhaka City are revealed in this study. In Dhaka, the groundwater level is dropping by 2/3 of a meter every year. As a result, water recycling and reuse have become critical in order to satisfy demand. Water use in five households was researched to analyze the generation of greywater in Dhaka City, and it was discovered that roughly 67 percent of water was reusable, whereas about 17 percent of potable water was lost in toilet flushing. Kitchen water was discovered to be polluted to some extent during the quality analysis, and it should not be reused based on its quality (Abedin & Rakib, 2013).

The importance of recycling has serious impacts. (Kassim, 2012) The necessity of recycling in solid waste management is discussed in this study. Cities around the world are increasingly urbanizing, resulting in rapid population growth. As the global population expands, so does the amount of solid trash generated. As a result, a significant amount of solid waste remained inadequately managed, posing a challenge to society. Today, society is more concerned about the environment and is much more conscious of its actions and the influence these activities have on the environment. Waste management must be sustainable, according to society. The optimal management of solid waste necessitates the use of cost-effective, socially acceptable, and ecologically beneficial technology. The study examines the concept of recycling as a method of solid waste treatment and considers if it is feasible.

Recognizing the importance of recycling; Asmatulu and Asmatulu (2011) suggested that Because of economic, environmental, and technological advancements, the usage of recyclable materials has been steadily rising over the world. If recyclable materials are not reused, they will degrade or corrode before being entirely eliminated by nature,

resulting in a waste of resources and significant environmental damage. The authors presented lectures on basic characterization and separation procedures of recyclable materials, recycled products, environmental concerns, and potential commercial uses to raise both academic and popular knowledge of recycling. Students were intended to learn about recycling ideas, processing processes, recent advancements on recycling, and health issues connected to poisonous and hazardous materials and their handling procedures during the lectures.

Methodology

This is a cross sectional study where primary source of data has been used and collected using mixed method tool. A semi-structured questionnaire has been developed using Likert Scale; A sample size of 20 family/unit has been selected from each 10 word of Dhaka Zone 3, as this zone has higher number of Waste collection vehicles, the authors assumes that so this zone generates most waste comparing other zones as there is not accurate data available. This questionnaire has been distributed among the 2 sample from each ward which is 10, resulting 2 samples. Stratified sampling style has been used for this study. The questionnaire was delivered and collected using Google form. Then the data was analyzed using content analysis to find out the research question.

Data Source	Data Collection	Questionnaire	Sampling Style
Primary	Mixed	Semi-Structured	Stratified

Analysis

The analysis part is organized under two broader categories, analyzing the degree of awareness of resident of Dhaka city, and analyzing the possible contribution by domestic recycling process.

Analyzing the degree of awareness

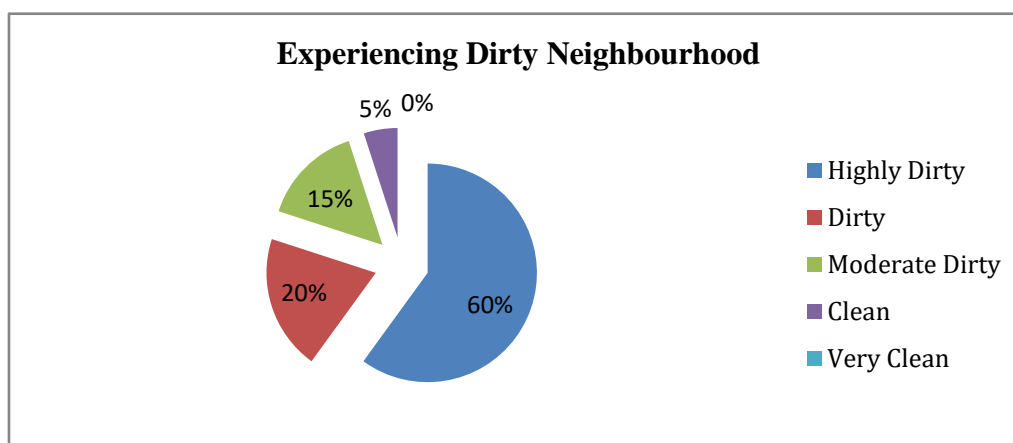


Figure-1: Degree of experiencing roadside waste

Figure 1 shows the degree of experience of roadside waste by Zone-3 residents of Dhaka city. 12 out of 20 family said that they consider the

Waste Management in Dhaka City: Exploring Domestic Recycling

roadside waste in their neighborhood as highly dirty, while 4 family said that consider it as dirty, and 3 family as moderate dirty, while only 1 family consider it as clean and absolute 0 family think the road side is very clean.

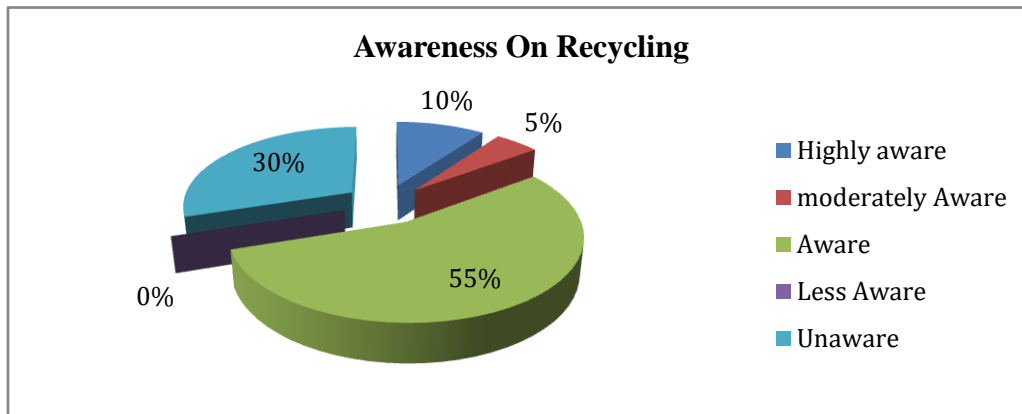


Figure-2: Degree of Awareness on Recycling

Figure 2 shows the degree of awareness on recycling waste by Zone-3 residents of Dhaka city. 6 out of 20 people said that they are unaware of the idea of recycling, while 11 families said that they are aware of the idea of recycling, and 2 family claim they are highly aware, while 1 are moderately aware, and absolute 0 family claimed that they are less informed.

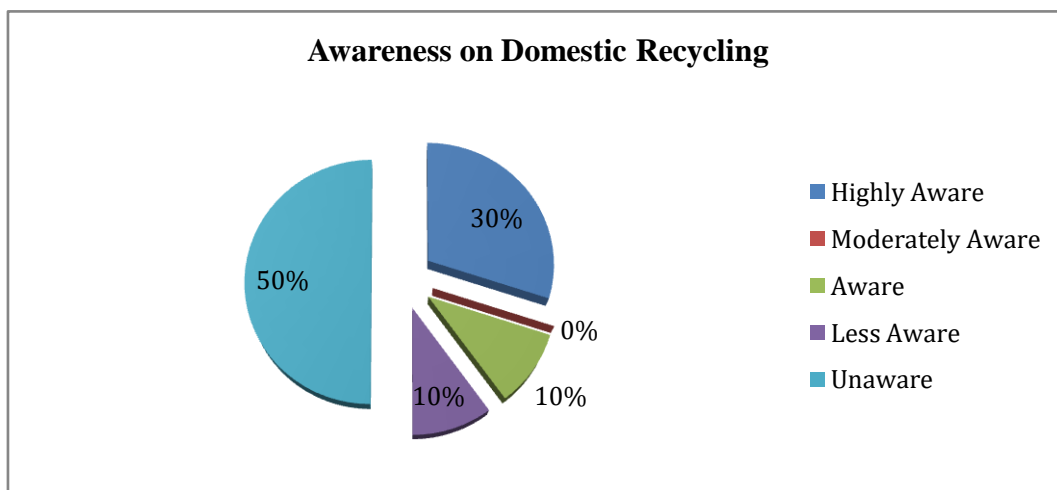


Figure-3: Awareness on Domestic Recycling

Figure 3 shows the degree of awareness on Domestic recycling waste by Zone-3 residents of Dhaka city. 10 out of 20 people said that they are unaware of the idea of domestic recycling, while 06 families said that they are highly aware of the idea of domestic recycling, and 2 family claim they are less aware, and 2 families are aware, while 0 family are moderately aware.

Analyzing the contribution by domestic recycling process

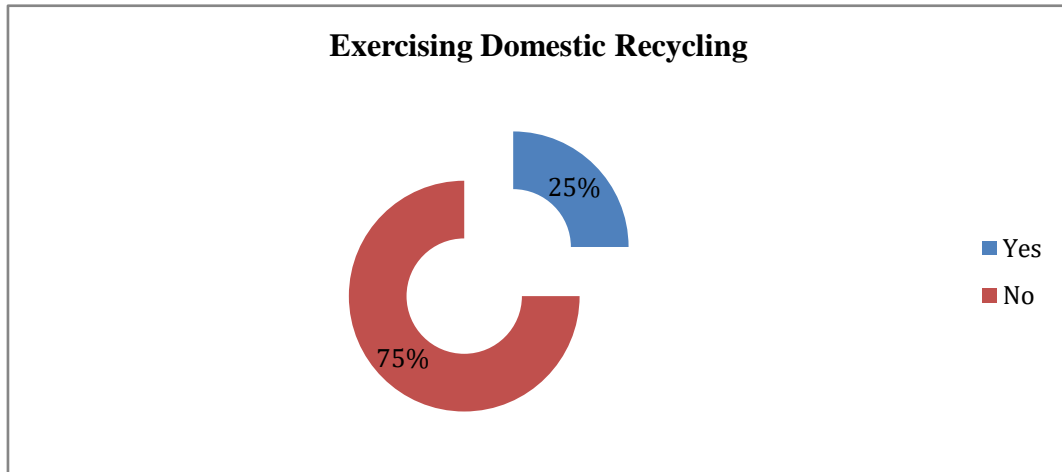


Figure-4: Exercising Domestic Recycling

Figure 4 shows the degree of contribution pertaining to Domestic recycling waste by Zone-3 residents of Dhaka city. 15 out of 20 people said that they don't exercise the domestic recycling process and only 5 family claims that they exercise domestic recycling process.

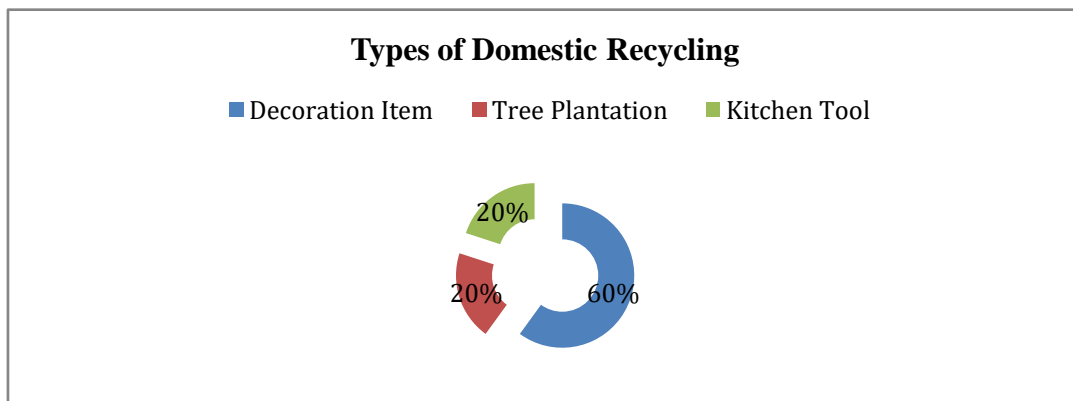


Figure-5: Types of domestic recycling

Figure 5 shows the types of contribution pertaining to Domestic recycling waste by Zone-3 residents of Dhaka city. 3 out of 5 families said that they make decoration items, 1 family said that they make tree plantation items, and 1 family said they make kitchen tools items.

Findings

The findings of this study are given below;

- 80% of resident of Dhaka zone-3 consider their neighborhood as dirty.
- 70% of resident of Dhaka zone-3 are aware of recycling process
- 40% of resident of Dhaka zone-3 are aware of domestic recycling

Waste Management in Dhaka City: Exploring Domestic Recycling

- Among the aware 40% resident, only 25% exercise or use domestic recycling
- Three categories dominate the recycling products; decorative piece, kitchen tools and tree plantation.

Conclusion

Recycling is vital because it decreases pollution, eliminates the need for new raw materials, saves energy, reduces greenhouse gas emissions, saves money, minimizes the amount of garbage that ends up in landfills, and allows items to be utilized to their full potential. The study revealed that the degree of awareness of exercising domestic resource of residents of Dhaka Zone-3 is below average, the study also finds out that only 10% resident contribute to domestic recycling process. This study suggests that domestic recycling process can have important significance and it can be used to help waste management from initial grassroots level.

References

- Abedin, S. B., & Rakib, Z. B. (2013). *Generation and Quality Analysis of Greywater at Dhaka City*. *Environmental Research, Engineering and Management*, 64(2). <https://doi.org/10.5755/j01.erem.64.2.3992>
- Afroz, R., Hanaki, K., & Hasegawa-Kurusu, K. (2009). *Willingness to pay for waste management improvement in Dhaka city, Bangladesh*. *Journal of Environmental Management*, 90(1), 492–503. <https://doi.org/10.1016/j.jenvman.2007.12.012>
- Afroz, R., Hanaki, K., & Tudin, R. (2010). *Factors affecting waste generation: a study in a waste management program in Dhaka City, Bangladesh*. *Environmental Monitoring and Assessment*, 179(1–4), 509–519. <https://doi.org/10.1007/s10661-010-1753-4>
- Amasuomo, E & Baird, J 2016, 'The concept of waste and waste management', *Journal of Management and Sustainability*, vol. 6, no. 4, pp. 88-96. <https://doi.org/10.5539/jms.v6n4p88>
- Asmatulu, R., & Asmatulu, E. (2011). *Importance of recycling education: a curriculum development at WSU*. *Journal of Material Cycles and Waste Management*, 13(2), 131–138. <https://doi.org/10.1007/s10163-011-0002-4>

- Bilitewski, B., Härdtle, G., Marek, K., Fischer, K. J., Gorr, C., Weissbach, A., & Boeddicker, H. (2013). *Waste Management* (1997th ed.). Springer.
- Carden, J.L. Jr. (1985). *Hazardous waste management*. United States: Springer-Verlag New York Inc.
- Correspondent, S. (2021, May 5). *646 tonnes of plastic waste produced in Dhaka every day*. The Daily Star. <https://www.thedailystar.net/city/news/646-tonnes-plastic-waste-produced-dhaka-every-day-2088961>
- Demirbas, A. (2011). *Waste management, waste resource facilities and waste conversion processes*. *Energy Conversion and Management*, 52(2), 1280–1287. <https://doi.org/10.1016/j.enconman.2010.09.025>
- Hassan, M. M., Ahmed, S. A., Rahman, K. A., & Biswas, T. K. (2008). *Pattern of medical waste management: existing scenario in Dhaka City, Bangladesh*. *BMC Public Health*, 8(1). <https://doi.org/10.1186/1471-2458-8-36>
- Hoorweg, D. (2014, March 25). *What a Waste : A Global Review of Solid Waste Management*. <https://Openknowledge.Worldbank.Org/Handle/10986/17388>.
<https://openknowledge.worldbank.org/handle/10986/17388>
- Jefferson, B., Laine, A., Parsons, S., Stephenson, T., & Judd, S. (2000). *Technologies for domestic wastewater recycling*. *Urban Water*, 1(4), 285–292. [https://doi.org/10.1016/s1462-0758\(00\)00030-3](https://doi.org/10.1016/s1462-0758(00)00030-3)
- Kassim, S. M. (2012). *The Importance of Recycling in Solid Waste Management*. *Macromolecular Symposia*, 320(1), 43–50. <https://doi.org/10.1002/masy.201251005>
- Matter, A., Ahsan, M., Marbach, M., & Zurbrugg, C. (2015). *Impacts of policy and market incentives for solid waste recycling in Dhaka, Bangladesh*. *Waste Management*, 39, 321–328. <https://doi.org/10.1016/j.wasman.2015.01.032>
- Miller, Z. (2018, April 19). *17 cities around the world that do Earth Day right*. Insider. <https://www.insider.com/earth-day-events-2018-4#san-francisco-california-united-states-3>
- Mirdha, R. K. B. A. R. U. (2021, February 28). *Becoming A Developing Nation: Bangladesh reaches A Milestone*. The Daily Star. <https://www.thedailystar.net/frontpage/news/becoming-developing-nation-bangladesh-reaches-milestone-2052161>

Waste Management in Dhaka City: Exploring Domestic Recycling

- Oweis and Khera (1990) *Geotechnology of waste management*. Choice Reviews Online, 28(04), 28–2161. <https://doi.org/10.5860/choice.28-2161>
- Polprasert, C. (2007). *Organic waste recycling: technology and management*. IWA publishing.
- Poulsen, O. M., Breum, N. O., Ebbenhøj, N., Hansen, S. M., Ivens, U. I., van Lelieveld, D., Malmros, P., Matthiasen, L., Nielsen, B. H., Nielsen, E. M., Schibye, B., Skov, T., Stenbaek, E. I., & Wilkins, K. C. (1995). *Sorting and recycling of domestic waste. Review of occupational health problems and their possible causes*. Science of The Total Environment, 168(1), 33–56. [https://doi.org/10.1016/0048-9697\(95\)04521-2](https://doi.org/10.1016/0048-9697(95)04521-2)
- Reno, J. (2015). *Waste and Waste Management*. Annual Review of Anthropology, 44(1), 557–572. <https://doi.org/10.1146/annurev-anthro-102214-014146>
- Seik, F. T. (1997). *Recycling of domestic waste: Early experiences in Singapore*. Habitat International, 21(3), 277–289. [https://doi.org/10.1016/s0197-3975\(97\)00060-x](https://doi.org/10.1016/s0197-3975(97)00060-x)
- Smallbone, T. (2005). *How can domestic households become part of the solution to England's recycling problems?* Business Strategy and the Environment, 14(2), 110–122. <https://doi.org/10.1002/bse.442>
- Tania, F. (2014). *Solid waste management of Dhaka city: A socio-economic analysis*. Banglavisision, 13(1), 91-100.
- Wilson, D. C. (2007). *Development drivers for waste management*. Waste Management & Research, 25(3), 198–207. <https://doi.org/10.1177/0734242X07079149>
- Yousuf, T. B., & Rahman, M. (2007). *Monitoring quantity and characteristics of municipal solid waste in Dhaka City*. Environmental Monitoring and Assessment, 135(1–3), 3–11. <https://doi.org/10.1007/s10661-007-9710-6>
- Zahur, M. (2007). *Solid waste management of Dhaka city: public private community partnership*. BRAC University Journal, Vol. IV, No. 2, 2007, pp. 93-97