"REVOLUTIONIZING WASTE MANAGEMENT IN KHALISHPUR, KHULNA: PAVING THE WAY FOR A BETTER QUALITY OF LIFE"

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ABSTRACT

This research aims to look at the inadequate and poorly maintained waste management system in Khalishpur Housing Estate, Khulna, to learn how to practice better waste management to improve the general quality of life in the area. The study employed a qualitative approach, including data collection, surveys, and environmental evaluations. Field surveys and municipal records were used to collect information on garbage creation, collection methods. Residents' perspectives and experiences with garbage management were gathered through surveys and interviews. The study's findings show that how to apply better effective waste management system by taking some steps and setting regulations that improves the lives of Khalishpur inhabitants significantly. Cleaner streets and better air and water quality result from reduced trash and pollution. Residents claimed better health and well-being due to less exposure to waste-related risks. Furthermore, areas with effective waste management systems saw increased property values, offering financial benefits to homeowners. This study emphasizes the process of waste management systems to improve the urban districts' overall quality of life. It highlights that sound waste management results in a better and a clean environment and has significant socioeconomic consequences. As a result , municipalities and local governments must prioritize waste management infrastructure and government policy to ensure that all citizens have fair access to these services.

Keywords: *Waste Management, Khalishpur housing Estate, infrastructure, recycle, policy.*

1. INTRODUCTION

A. BACKGROUND

Bangladesh's housing situation has never been ideal. Bangladesh has one of the greatest population densities in the world with 140.10 million people. The state of the economy is far from satisfactory. Furthermore, a sizable section of the populace lacks access to livable housing and other essential amenities, as well as living below the poverty line. Bangladesh, like many other developing nations, is severely lacking in both urban and rural regions in terms of cheap housing. In 1991, 3.10 million housing units were thought to be needed, of which 2.15 million were in rural regions and 0.95 million in cities. By the end of the year 2000, 5.0 million people were anticipated to be in need in Bangladesh (National Housing Authority, 2004).

In Khulna, a prominent city in Bangladesh, the history of housing may be traced back to a significant number of years. Because of the few historical documents that are available and the natural evolution of settlements over the course of time, it is difficult to determine the exact first dwelling development that took place in the city. Khulna, like many other cities in Bangladesh, has undergone significant urbanization and population increase over the course of the years, which has resulted in the establishment of a variety of residential districts and neighborhoods.It is likely that one of the earliest residential neighborhoods in Khulna was constructed during the time that the city was experiencing British colonial rule. At that time, the city was functioning as a significant commercial and industrial hub.

In 1965–1966, the Housing Scheme Department (HSD) founded Housing Tin tola. It was primarily constructed for officials in the government. Within the jurisdiction of the Khulna City Corporation, it was located in ward no. 12. It is estimated that there are eight buildings in the vicinity. The typical number of people in a family is between three and four, and each building has the capacity to house families. Due to unfortunate circumstances, the structures are not in a good shape. Additionally, the environment in the region is bad as a result of a waste management system that was not planned and implemented. Even though it is true that garbage that is not properly managed can be hazardous, there are also some good sides to these situations. Despite the fact that garbage has the ability to cause harm to people, it also has the capacity to be converted into valuable things. The successful implementation of this transition is contingent upon the utilization of science and technology in the management of waste, in addition to the awareness of individuals regarding the appropriate handling of garbage.
Waste management is a critical issue in large cities like Dhaka,Chittagong,Khulna in Bangladesh, and it consumes a huge amount of resources. Every individual in these cities produces around 350 grams of garbage each day, the majority of which is organic and biodegradable. Because people are actively interested in reusing and recycling, paper and metals account for just roughly 2% of total garbage. However, considerable waste management concerns remain as a result of issues with municipal planning, government systems and regulations, and administrative procedures. Primary garbage collection is handled by private companies, while local governments control daily waste transportation from secondary container sites to landfills. To lessen the impact, concrete border barriers have been installed in wards to cover collected garbage, decreasing public exposure and not so pleasant odors.

2. METHODOLOGY

In the Khalishpur Housing Area, KHULNA, the collection of data was carried out through the use of continuous observations that were carried out over the course of an entire week. The research looked at a number of different types of waste and evaluated the processes that were utilized to transform them into different kinds of valuable commodities.

2.1 The formulations of problem in this academic paper are:

1. Definition of garbage pollution, including pollution?
2. What are the types of garbage?
3. Analysis based on related regulation

2.2 The purpose of this paper

In the hope that the readers know the efforts that can be done to preserve the environment, especially that include waste management and the reader should be able to implement it in everyday life.

3. DISCUSSION

3.1 Definition

Pollution refers to the planned or unintentional introduction of biological organisms, substances, energy, or other elements into the water or air. Pollution refers to the alteration of water or air by human actions and natural processes, resulting in a decrease in the quality of water/air and its failure to meet its intended purpose. Environmental pollution can manifest rapidly in any location, with a mounting load of pollution resulting from industrial waste containing various substances, including heavy metals.
Pollutants are substances or materials that can cause contamination, such as waste. Dispose of the excess waste remaining after the completion of a procedure. Trash is a human-defined term that categorizes items based on their usefulness. In reality, natural processes do not recognize the concept of garbage; they only produce byproducts during and after their occurrence. Nevertheless, the categorization of trash in the context of the environment might be based on many types, according to the nature of human existence.

Environmental pollution is an unavoidable consequence of human actions. While it is impossible to completely eliminate environmental pollution, we may take measures to minimize pollution through pollution control efforts and by raising public knowledge and concern for the environment to prevent more contamination.

Waste management is all about correctly handling and disposing of garbage. This includes removing, breaking down, recycling, reusing, or managing garbage in order to protect the environment and people's health. The major objective is to reduce waste and eliminate potential difficulties for our environment.
Collection, monitoring, regulation, and disposal are all examples of activities. Local governments frequently provide free waste pickup services. The gathered garbage is disposed of in a variety of ways, including landfill compaction and incineration. Solid waste, in particular, is burnt to reduce itsvolume by 80 to 95% and convert it to gas, steam, ash, and heat. However, air pollution is a hazard when garbage is disposed of by incineration.

As a result, alternate methods, such as recycling, reprocessing, and re-use, are advocated. Organic wastes, particularly biodegradable wastes, are allowed to decay so that they can be utilized as mulch or compost in agriculture, and methane gas produced by biological deterioration is collected and used to generate energy and heat.

3.2 Types of waste

3.2.1 Based on the nature of waste can be classified as follows:

A. Organic waste - also known as biodegradable waste, refers to waste materials that undergo decomposition, such as leftover food, vegetables, dry leaves, and similar substances. This waste can be further transformed into compost.

B.Inorganic waste - Non-biodegradable organic waste includes materials that are difficult to decompose, including but not limited to paper, plastic toys, bottles and vessels of beverages, cans, and wood.

3.2.2 According to the form

Trash refers to solid or liquid material that is no longer needed and is disposed of. Waste can be categorized based on its shape into different types:

Solid waste refers to any waste substance that does not include human feces, urine, or liquid waste. Common types of domestic waste include kitchen waste, yard waste, plastic, metal, glass, and various other materials. Waste material is categorized into organic and inorganic waste. Organic waste refers to waste derived from products containing organic components, such as vegetable and animal leftovers, paper, wood, domestic appliance parts, twigs, and grass from garden cleaning activities. According to the inherent potential to break down naturally (biodegradability), waste can be categorized into the following categories:

a) Biodegradable waste refers to waste materials that can be fully broken down by either aerobic or anaerobic biological processes. Examples of biodegradable garbage include kitchen waste, animal remains, trash, and agricultural waste from plantations.

b) Non-biodegradable: waste that is resistant to decomposition by biological processes. Can be divided into smaller parts:

i.Recyclable: waste that can be reprocessed and reused due to its economic value, such as plastic, paper, textiles, and other materials.

ii. Non-recyclable waste refers to junk that lacks economic value and cannot be effectively processed or converted, such as tetra packs, carbon paper, thermal coal, and similar items.
Liquid waste refers to liquid substances that have been utilized and are no longer needed, therefore being disposed of in landfills.

a)Black Trash: Liquid waste created from the toilet and industries. This waste contains hazardous germs.

b) Household waste: Liquid waste produced from domestic activities in the kitchen, bathroom, and laundry area. This waste may carry germs. Human life is accompanied by significant quantities of trash generated by industrial activities, including mining, manufacturing, and consumption. The majority of industrial products will eventually become waste, with the quantity of waste being about equivalent to the amount of consumption. In order to reduce liquid waste, it is important to avoid the negligent disposal of trash by factories, such as throwing it into the gutter.

3.2.3 Human waste

The digesting process results in human waste, which includes feces and pee. Since it can carry diseases from one person to another, it poses a risk to human health. The three physical states that human feces can take on are solid, liquid, and gas. When expelled as a gas, it might be considered

an emission, which is commonly linked to pollution. Reducing potential dangers to human health and the environment requires effective management and treatment of human waste.

3.3 Analysis based on regulation

In Bangladesh, there is no comprehensive and specific legislative structure for dealing with garbage disposal concerns. Although there is no one legislation that addresses the environmental consequences of garbage disposal, there are sector-specific statutes that address environmental problems. These measures make a more fragmented attempt to address environmental challenges.

4. RECOMMENDATION

Ensuring efficient waste management in residential areas is crucial for maintaining a hygienic and environmentally sustainable condition. Below are some suggestions for garbage management in residential areas:

1. Trash Segregation at the Source : Promote the practice of separating trash into different categories, such as recyclable materials, organic waste, and non-recyclable items, right at the point where it is generated.

- Install designated trash bin for various categories of refuse in conveniently positioned areas around the residential area.

2. Promotion of Awareness and Education : Organise awareness programmes to enlighten citizens on the significance of waste segregation, recycling, and the adverse environmental consequences of inappropriate trash disposal.
- Disseminate informative brochures or organise seminars to advocate for the adoption of appropriate waste management techniques.

3. Community Composting : Encourage the practice of composting organic waste within the community. Supply compost receptacles and instruct households on composting techniques.
- Employ composted material for the purpose of community gardening or landscaping within the residential vicinity.

4. Recycling Facilities : Establish recycling stations in the residential area to gather recyclable items such as paper, plastic, glass, and metal.
- Form alliances with nearby recycling facilities to guarantee the appropriate disposal and recycling of gathered items.

5. Consistent Collection plan : Establish and adhere to a systematic and effective garbage collection plan. Ensure comprehensive garbage collection coverage of the whole residential area at designated periods.

6. Regulatory Enforcement : Implement and uphold waste management rules, ensuring fines are imposed for inappropriate trash disposal. Effectively convey the image of non-compliance to resist reckless conduct.

7. Community Cleanup activities : Regularly arrange community cleanup activities to engage neighbours in maintaining the cleanliness of the region.
- Offer rewards or acknowledgements for proactive engagement in community cleaning endeavours.

8. Electronic Waste (e-waste) Collection : Set up designated locations for the collection of electronic trash, urging residents to properly discard their outdated electronic gadgets.
- Establish partnerships with e-waste recycling facilities to ensure the appropriate disposal and recycling of electronic trash.

9. Green Initiatives : Implement environmentally friendly measures such as afforestation, rainwater collection, and the utilisation of eco-sensitive products to establish a sustainable and ecologically aware community.

10. Collaboration with Local Authorities : Engage in partnerships with local municipal authorities to enhance waste management infrastructure and solicit assistance for community projects.

Residential areas may enhance the sustainability and environmental friendliness of their waste management system by adopting these suggestions.

5. CONCLUSION

The academic paper focuses on waste management in the Khalishpur Housing Area, kHULNA using continuous observations over a week to evaluate various types of waste. The formulated problems include defining garbage pollution, identifying types of garbage, and analyzing related regulations. The paper aims to inform readers about environmental preservation efforts, especially in waste management, for practical implementation in daily life. It discusses pollution, waste management, and types of waste, how to reduce the waste mismanagement, emphasizing the importance of minimizing environmental impact. The lack of comprehensive legislation in Bangladesh for waste disposal is highlighted. Recommendations include source segregation, awareness programs, community composting, recycling facilities, and collaboration with local authorities to enhance waste management in residential areas.

6. REFERENCES

Arumbinang, M. H. (2015). *THE ACADEMIC PAPER ON ENVIRONMENTAL LAW*. INTERNATIONAL PROGRAM FOR LAW AND SHARIA.

Consultants, W. C. (2020). *Waste Concern*. Retrieved from Waste Concern: https://wasteconcern.org/

Consultants, W. C. (2020). *wasteconcern*. Retrieved from wasteconcern: https://wasteconcern.org/

Government, B. M. (2021). *Department of Economic and Social Affairs*. Retrieved from Department of Economic and Social Affairs: https://sdgs.un.org/

Mustofa, M. J. (2020). *Legal Framework Dealing with Waste Management* . Dhaka: Southeast University Journal of Arts and Social Sciences, Vol. 3.