

Urban Waste Management in Bangladesh: An Overview with a Focus on Dhaka



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Summary

As one of the fastest urbanising economies in South Asia, Bangladesh has been facing a rapid growth of waste generation. In the last three decades, waste volume doubled every 15 years. An average of 55% of solid waste remains uncollected in urban areas, with a variation of collection efficiency from 37% to 77%. The ever-increasing hazardous medical and e-wastes add further burden to the ineffective waste management system. Except for some pilot projects, waste is not segregated formally, contributing to piling up waste and creating pressure on landfills which are not managed sustainably. Urban local government authorities are responsible to manage waste, but show a lack of both capacity and commitment toward proper waste management. Dhaka has to deal with around 6,500 tons of waste daily, which is projected to increase to 8,500 tons by 2032. The city has demonstrated improved performance of waste collection with an average of 77–80% efficiency. While the primary waste collection is done by private contractors, city corporations oversee daily waste transportation from secondary container sites to landfills. They have set up concrete boundary structures in wards to hide accumulated waste from public sight and reduce the spread of stink. However, their dependence on landfills for the final disposal of wastes is a questionable solution for a land-scarce and populous city like Dhaka. Changes in policy, waste minimisation, segregation and recycling at all stages are needed. Ward-based management structure built on community participation and partnership with relevant government, private and international agencies, as well as behavioral changes of waste generators and collectors are also indispensable for creating sustainable solutions to existing waste management problems. Finally, waste management should be dealt through a holistic approach to draw the attention of policymakers and facilitate mobilisation of resources. Improvement in waste management can foster the achievement of SDG 11 (Sustainable Cities and Communities) and help achieve other goals such as SDG 7 (Affordable and Clean Energy).

About this Background Paper

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Disclaimer

The author, Mr Sirajul ISLAM, is working at the BRAC Institute of Governance and Development (BIGD), BRAC University, Bangladesh. The views and opinions expressed in this background paper are the author's own and do not reflect the standing of his affiliated Institute, nor the views of the Asia-Europe Foundation (ASEF).



1. Overview of Urban Waste Management in Bangladesh

With approximately 63 million people – 38% of the country's total population – living in urban areas, Bangladesh is one of the fastest urbanising economies in South Asia (The World Bank, 2020). This rapid urbanisation has resulted in the increasing quantity of waste and complexity of its management, particularly in large cities like Dhaka, with undesired consequences on urban livability, environment and public health. Sustainable Development Goal 11 (Sustainable Cities and Communities) sets a target to “reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management by 2030”. This target is also closely associated with the achievement of other SDGs. For instance, sustainable energy can be achieved through waste recycling and contribute to SDG 7 which envisions to “ensure access to affordable, reliable, sustainable and modern energy for all”.

Waste is defined as “a product or substance or object which is no longer suited for its intended use and which the holder discards or intends or is required to discard.”¹ It can be categorised broadly into hazardous and non-hazardous materials. Industrial, medical and electronic wastes (e-waste) are classified as hazardous wastes. Non-hazardous wastes include municipal waste, such as household garbage and debris from demolition of buildings and other structures. Alternatively, waste can be solid or liquid and each type has different methods of disposal and management. Both hazardous and non-hazardous waste, in their various forms, can pose serious threats to the environment and human health if left uncollected and untreated. The paper provides an overview of solid waste management, with a

particular focus on Dhaka city. The United Nations (1997) defined solid waste management as “supervised handling of waste material from generation at the source through the recovery processes to disposal.” Municipal solid waste poses a great challenge in cities because of its volume and management problems. Approximately 25,000 tons of solid waste are generated daily in urban areas of Bangladesh, with 170 kilograms (kg) per capita per year (Ahmed, 2019). The volume of waste was 6,500 and 13,300 tons in 1991 and 2005 respectively (Dhaka Tribune, 2020a) – doubling in 15 years. Due to fast urbanisation, changes in living standards of urban dwellers and the country's economic transitions toward a middle-income economy, the waste amount will continue to increase. As such, the per capita daily urban solid waste generation is projected to increase to 0.60 kg by 2025 from 0.49 kg in 1995 (Ahmed, 2019). Current waste management practices are characterised by the inefficient practice of waste collection, costly removal and disposal mechanisms, shortage of lands for final disposal, absence of policy regarding recycling practices and lack of proper awareness about environmental problems (Abedin & Jahiruddin, 2015).

Solid Waste Management in Cities

An average of 55% of solid waste remains uncollected in urban areas, with a variation of collection efficiency from 37% to 77% (Ahmed, 2019). Uncollected waste, particularly plastic and polyethylene items, end up in drainage system and water bodies, clogging water flow in drains, polluting surface and groundwater, soil and air. This has been particularly visible in Dhaka where water bodies in and around the city

¹ INTOSAI Working Group on Environmental Auditing. (n.d.). Auditing Waste Management. Retrieved from <https://sisu.ut.ee/waste/book/11-definition-and-classification-waste>

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have become unsanitary for human use and inhabitable for marine life.

The absence of waste segregation is another problem that contributes to piling up waste in cities. A globally recognised waste management approach is the 3R (reduce, reuse and recycle) strategy. By following this approach, a large amount of recyclable waste, such as discarded container glasses and plastic bottles, can be recycled annually for a significant market value. Furthermore, a higher presence of organic items (70%) in waste composition provides the opportunity to transform waste into composting fertilizers. The use of organic fertilizers can improve food security by increasing crop production by 25–30% and reducing the necessity of chemical fertilizers by 35–40% along with job creation and reduction of emission of greenhouse gases (Dhaka Tribune, 2015a). However, in Bangladesh, waste recycling takes place in the informal sector by poor scavengers, while the formal sector continues to neglect the critical need for waste recycling, especially for a land-scarce and populous country like Bangladesh.

In Bangladesh, 9 out of 12 city corporations have designated sites for dumping municipal solid waste. Razzak (2020a), however, identified various problems regarding landfill management. As city corporations and municipalities do not have appropriate landfill operation and management units, landfills are simply open-air crude dumpsites without sanitary arrangements. A key problem is that although the sites were set up away from human settlements, over the years, people came to the proximity of landfill sites within 500 meters. A similar state of non-sanitary landfills is also observed in the case of municipalities. For instance, the Cox's Bazar municipality has dumped nearly 0.3 million tons of waste in open-

air crude dumpsites since 2010 with a risk of leachate (liquid that drains from a landfill) flowing into nearby rivers. The details of some landfills are given in Table 1.

The responsibility of waste management lies with the respective urban local body, such as city corporations and *paurashavas*². With the permission of the city authority, community organizations primarily collect wastes from households and markets in large cities, while this is done by municipality staff in smaller cities. They dump the collected waste into designated containers set up by city corporations and *paurashavas*, from which city authority's trucks take the accumulated waste to landfill sites for final disposal. Households and shop owners pay a small amount of money monthly to the neighborhood organisations for door-to-door collection services.

The overall state of waste management in cities is not up to the mark. For instance, Khulna City Corporation collects 400 tons of solid waste daily compared to 550–600 tons generated in the city of one million inhabitants (The Daily Star, 2018). The city authority lacks the required logistics and is also criticised for showing carelessness toward waste management. City dwellers' random disposal of waste compounded the problem further, resulting in health hazards, stink and environmental degradation in this coastal city. Gazipur, a major industrial city, generates approximately 2,500 tons of waste daily, which are disposed of in an open space beside a national highway, causing waste to spill onto the highway. The corporation could not arrange any designated landfill over the last eight years, highlighting the lack of systematic waste dumping. A similar dire situation also exists in smaller cities.

² *Paurashavas* are constituted as municipal authorities for small cities, while city corporations work in large cities.

Name of city corporation	Landfill location	Landfill size	Proximity of population settlement	Establishment year	Amount of dumped wastes so far (tons)	Presence of sanitary arrangements
Rajshahi City Corporation	City bypass	15.98 acres	Close to 500 metres	2004	1.5 million	No sanitary arrangement
Sylhet City Corporation	Beside Sylhet-Fenchuganj Road	7 acres	Within one kilometre	1995	1.8 million	No sanitary arrangement
Barishal City Corporation	-	-	Within 500 metre	2005	0.7 million	No sanitary arrangement
Khulna City Corporation	Rajbad	20 acres	-	1987	-	No sanitary arrangement
	Shaila	17 acres	-	2008	-	No sanitary arrangement
	Mathabhangha	25 acres	-	2015	-	No sanitary arrangement
Chattogram City Corporation	Halishahar	15 acres	-	1960s	6 million	No sanitary arrangement
	Arefin Nagar	19.5 acres	-	2010	3.5 million	No sanitary arrangement
Cumilla City Corporation	Jhakuni Para	10 acres	Within 500 metres	2008	0.5 million	No sanitary arrangement

Table 1: Comparative Scenario of the Landfills in Bangladesh

Pangsha municipality in Rajbari could not develop a waste management system for the town in more than three decades (The Daily Star, 2021). All types of wastes from households, businesses, as well as healthcare facilities are dumped in an open area beside a highway. City authorities have taken various initiatives in partnership with national and international organisations to improve waste management. Since 2005, Japan International Cooperation Agency (JICA) has been supporting Dhaka city corporations to streamline waste management practices.

Some initiatives are being experimented with support from Waste Concern³, BRAC (NGO), the United Nations Development Programme (UNDP) and UNICEF in other cities. More

specifically, a pilot project titled “Building Zero Waste Communities for a Pollution-free Environment in Bangladesh” has been undertaken by the Environment and Social Development Organization (ESDO) to turn three different localities into zero waste zones. With the motto of the 4R system (refuse, reduce, reuse and recycle), this project will build four waste composters and two biogas plants, improve current waste disposal sites and

³ Waste Concern is a Bangladeshi social business enterprise working on improving waste management and recycling.

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distribute waste bins at the household level (Dhaka Tribune, 2020b). Another foreign-funded waste management initiative is the Integrated Landfill and Resource Recovery Facility on nearly one acre of land in Jessore Municipality. This facility produces fertiliser, biogas and electricity by recycling decomposable waste materials, such as fruit peels and vegetables. Only non-decomposable materials, including plastic and polythene, are disposed of in landfills (Dhaka Tribune, 2019a).

Medical Waste Management in Cities

Approximately 14,500 tons of medical waste were generated in April 2020 (Tayeb, 2020). These wastes are items used to treat patients in healthcare facilities. Due to COVID-19, nearly 206 tons of medical waste is generated daily in Dhaka city. The pandemic-induced waste adds pressure on the already fragile medical waste management system. Generally, about 14% of the medical waste is managed properly, which is only 7% in the case of COVID-related waste (Dhaka Tribune, 2021).

The Directorate General of Health Services (DGHS) requires every healthcare facility to have an incinerator, an autoclave and effluent treatment plants to dispose of hazardous medical waste. However, the majority of medical centers either do not fulfill these requirements or show a poor operational ability to run these facilities. For instance, out of 205 healthcare centers in Rajshahi, only one center has an incinerator with poor operational capacity. The Medical Waste (Management and Processing) Rules promulgated by the government of Bangladesh in 2008 requires to separate medical waste from other waste at any stage and burning these wastes under controlled environment. In practice, some hospitals burn medical wastes in their backyards (Razzak, 2020b). Inadequate equipment of healthcare establishments, weak monitoring and lack of

political will are responsible for poor compliance with medical waste management guidelines (Tayeb, 2020). In case of capacity constraints, since 2018, the NGO Prism has been collecting hazardous medical waste from hospitals and clinics of Dhaka and other large cities and transporting them to the plant located at landfills for treatment (Dhaka Tribune, 2021; Razzak, 2020b). The DGHS has also undertaken a medical waste management project to set up disposal plants in 69 government hospitals across the country (Dhaka Tribune, 2021).

E-waste Management in Cities

An increasingly growing type of waste is e-waste, generated from handsets, computers, hardware components, televisions, refrigerators and other electrical and electronic appliances. E-waste accounts for an estimated 0.4 million tons with an annual growth of 20%, which is projected to be 4.62 million tons by 2035 (Parvez, 2019). Since a number of toxic substances, such as lead, chromium and plastic additives, are contained in e-wastes, their haphazard dumping puts public health and the environment at risk. The government took an initiative to formulate rules to manage e-waste in 2012, but these rules are still not finalised. The draft rules entail an awareness campaign about risks related to e-waste handling and the provision of incentives from manufacturers and assemblers to consumers to return their e-wastes for recycling. At present, an estimated 13,300 tons of e-wastes (3% of total generated e-wastes) are recycled annually (New Age, 2021a; Parvez, 2019). Around 50,000 children are engaged informally in collecting e-waste and 83% of them become exposed to toxic substances (New Age, 2021b). Public health and environmental risks show the urgency of promoting a proper management of e-wastes and supporting the growth of the manufacturing sector.

2. Overview of Urban Waste Management in Dhaka

Of the urban centers in Bangladesh, Dhaka has grown rapidly with a population of nearly 18 million, which accounts for 10% of the country's population and 36% of the country's urban population (Bird et al., 2018). Dhaka Municipality was established in 1864, which was upgraded to Dhaka Municipal Corporation in 1978 and renamed Dhaka City Corporation in 1990. Finally, the city was divided into two parts in 2011: Dhaka South City Corporation (DSCC) and Dhaka North City Corporation (DNCC).

Waste Volume in Dhaka City

Approximately 6,500 tons of waste was produced daily in Dhaka in 2018, which is projected to increase to 8,500 tons by 2032 (Nahar, 2020). Daily per capita waste is 0.513 kg in Dhaka North and 0.56 kg in Dhaka South (Khan, 2018). The city's waste is dominated by household items with different estimates ranging from 4,000 to 5,393 tons (Dhaka Tribune, 2017a; Razzak, 2020c). Lifestyle change, population growth, an increasing number of commercial establishments triggered the growth in waste generation in the city. Of the wastes generated in the city, an average of 17–20% remains uncollected (Dhaka Tribune, 2019b; Razzak, 2020c).

Waste Collection and Disposal in Dhaka City

The ever-increasing waste quantity requires well-planned and proactive waste management with a particular focus on reducing waste generation and segregating waste at the source and treatment before final disposal. Figure 1 presents the waste management process in Dhaka city. City corporations earmark certain places with containers, dustbins and concrete boundary structures named across the city to prevent random disposal of wastes. There are 199 and 321 garbage containers of different

sizes in DNCC and DSCC respectively (Chandan, 2019). As per the City Corporation Act, waste generators are supposed to dispose of waste into these designated places from which the corporations transport accumulated wastes to landfills for final dumping. But waste generators do not find self-disposal of waste feasible because of the distance between their locations and container sites. As such, around 83% of households availed door-to-door collection services provided by private contractors. For availing these services, two-third of households pay BDT 30–100 (USD 0.35–1.17) per month (BIGD, 2015).

There are approximately 6,000–7,000 private contractors (generally local influential people) operating in Dhaka city, who received permission from city corporation with a set of conditions. They hire unskilled waste pickers for collecting waste from generation sources (Chandan, 2019). According to the Bangladesh Labour Foundation, around 100,000 waste pickers work in Dhaka. They work from 8:00 AM to 4:00 PM to collect waste from all residential buildings, shops, restaurants and other establishments on the street. They collect an average of two tons of waste from a street, which are transported to the city corporation's designated places. For waste collection service, each worker receives BDT 1,000–4,000 (USD 12–47) monthly from their employer depending on their experience and an additional BDT 100–125 (USD 1.17–1.46) from selling recyclable items daily. Earnings from resalable items work as incentives for them to collect more wastes from households and other sources. The majority of the waste collectors are uneducated, ultra-poor women and children. The widespread use of child labor in the primary waste collection is carried out for maximising profit by giving meager wages to the working children.

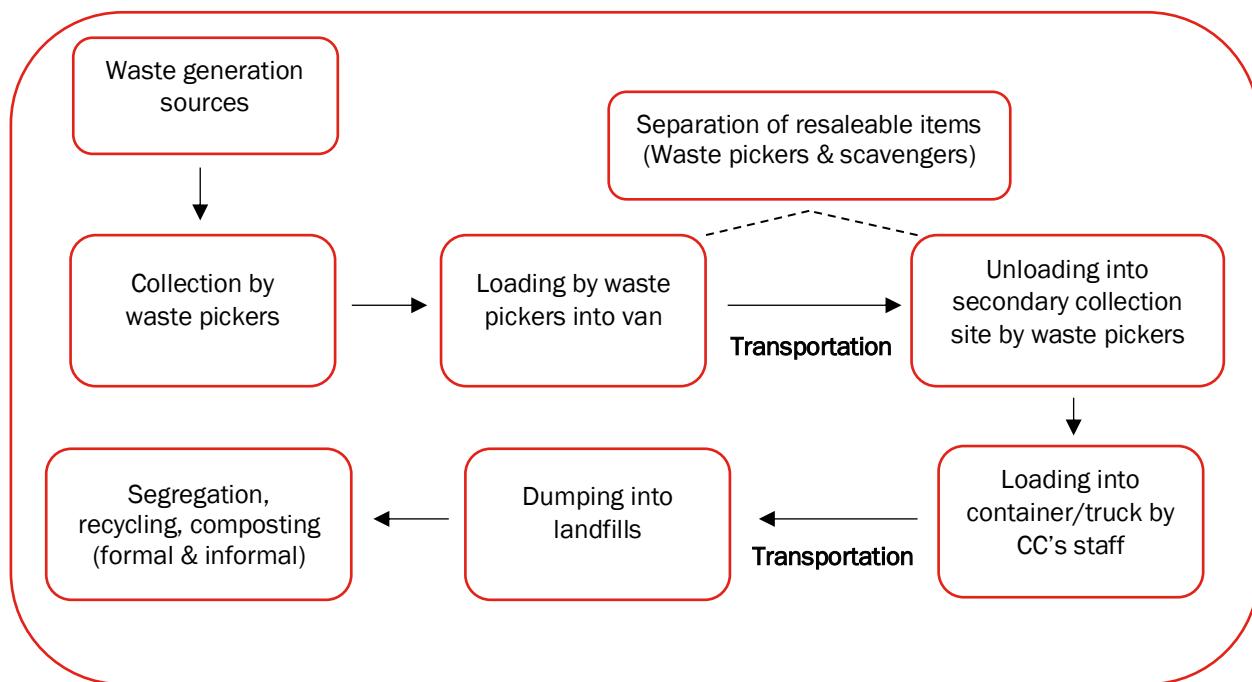


Figure 1: Waste Management Process in Dhaka City

This practice violates the conditions imposed by the city corporation in the permit provided to the contractors. In practice, city corporations do not oversee the enforcement of these conditions, rather their role remains focused on monitoring waste collection.

While the primary waste collection is done by private contractors, the city corporation's conservancy inspectors oversee daily waste transportation from secondary container sites of a ward⁴ to landfills. To streamline secondary waste management, the city corporations had taken a "secondary transfer station (STS)" project, funded by the World Bank from 2013,

to construct an STS⁵ to dump waste in every ward. Nearly 52 STSs were built in DNCC (DNCC, n.d.), but neither of the two Dhaka city

corporations could establish the targeted number of STSs within the project lifetime due to the lack of available land in the city plan, encroachment of the allotted land by influential people, local peoples' protests and failure to obtain environmental clearance. Another initiative was the installation of around 12,000 mini waste bins at every roadside. This initiative aimed to prevent random disposal of waste by the public and keep streets clean, but it has not been successful so far as the public continues disposing of waste everywhere instead of using the bins.

There is an exception for primary waste collection by city corporations. Approximately 30 tons of waste is generated from sacrificial

⁴ A ward is a geographical area which is created for electoral purposes. DSCC has 75 wards, while there are 54 wards in DNCC. Each ward has an elected ward councilor.

⁵ STS (secondary transfer station) is a concrete boundary structure built to hide accumulated waste from public sight and reduce the spread of stink.

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animals during the Eid-ul-Adha.⁶ To deal with this occasional waste, both corporations designated 1,054 spots to sacrifice animals by Muslims, distributed 175,000 bags among city dwellers to store wastes, set up a hotline to receive suggestions or complaints of waste management, and engaged nearly 21,000 cleaners to remove wastes quickly (Dhaka Tribune, 2018). Success in cleaning the waste of sacrificial animals within 24 hours shows the capacity of city corporations for waste management in Dhaka.

Apart from the occasional waste management, the city corporations have come up with new ideas and initiatives to deal with municipal waste in Dhaka. For instance, DSCC piloted a “digital tracking system” to stop its cleaning staff’s negligence toward their regular duties. This system required a field-level waste management officer to take pictures and videos of important points, establishments and roads in their work area and upload them with a new mobile app before 7:00 AM. The digital monitoring system was accessible by the mayor and other relevant officers (Dhaka Tribune, 2017b).

Final Waste Dumping in Dhaka City

The final disposal of solid waste is heavily dependent on landfills in Dhaka, which is a questionable solution for a land-scarce and populous city. The city established Matuail landfill on 50 acres of land in 1993, which was further expanded by adding 50 acres of land in 2006. Another landfill is located at Aminbazare, built on 52 acres of land in 2008. Since 2011, the DSCC has been dumping waste in Matuail, while Aminbazar has been used by DNCC. Incremental growth of waste generation and their disposal without formal separation and recycling soon overwhelmed the disposal sites. Matuail was projected to

reach its capacity in 2018, while Aminbazar’s capacity ran out in 2017 (Khan, 2018).

Matuail is the only sanitary landfill in the country as it has fulfilled some basic requirements, including leachate management — a system to collect and treat leachate to prevent contamination of underground and nearby water bodies. Matuail has also a rainwater drainage system, a clay liner and a landfill gas vent-pipe to avert the accumulation of methane. However, the experts call it “a controlled landfill” instead of a sanitary one. They argue that soil cover is not added regularly due to the expenses required for it (nearly BDT 400 million/USD 4.7 million a year), resulting in compacting waste to manage excessive waste heights (Khan, 2018). Compared to Matuail, the Aminbazar landfill is simply an crude open-air dumpsite. Except for an embankment, this site does not have daily soil cover, functional leachate pond, segregation and recycling facility. Both landfills have an acute shortage of human resources and necessary equipment, leading to waste dumping at the landfill all day long instead of the prescribed time (10:00 PM to 6:00 AM) and shortened longevity of available equipment.

To manage the crisis of Aminbazar, an ongoing rehabilitation focuses on leachate treatment — emptying the leachate pond and making it functional again — and vertical expansion of the road network and platforms to spread waste both upwards and outwards. As a result of repairing the leachate treatment plant, the treated liquid has been found within an acceptable limit in a recent test. The site received soil cover in 2018 for the first time. To address equipment shortages, the corporation is outsourcing equipment from the private sector. With these rehabilitations, the service

⁶ Eid-ul-Adha is the festival of sacrifice celebrated by Muslims.

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life of Aminbazar extended from 2017 to 2021 (Razzak, 2020a).

Despite unsustainable management of existing landfills and land scarcity in and around Dhaka, city corporations have emphasized acquiring more land as a waste disposal strategy. DSCC has undertaken a project titled “Matuail Sanitary Landfill Expansion and Development” to acquire 81 acres of adjacent land at the cost of BDT 7,240 million (USD 85 million). The project entails using 50 acres of land for landfill and another 31 acres for a waste-to-energy facility through an incineration plant. DNCC is in the process of acquiring 80 acres of land as well. However, experts question the feasibility of recycling waste into energy given the presence of more than 70% moisture content in solid waste coming from kitchen and kitchen markets (Chandan, 2020; 2021).

Waste Segregation and Recycling in Dhaka City

Waste reuse and recycling activities are still carried out informally (Alam, 2019). This informal segregation takes place when the primarily collected waste are being transported to secondary points and at landfills (see Figure 1 above). Poor waste pickers come to landfills every day from nearby villages, collect recyclable materials and then sell them to nearby recycling workshops. The livelihoods of waste pickers and recyclers are dependent on the functioning of this informal waste segregation and recycling around the landfills.

Segregating reusable and recyclable materials with bare hands is a hazardous task, which puts waste workers to injuries and different kinds of skin and respiratory diseases (Chandan, 2020). Moreover, they suffer from social stigma. A campaign titled “The Untold Stories of Sanitation and Waste Workers” sponsored by WaterAid, the Embassy of Sweden and *The Daily Star* was undertaken to

shed light on the realities of livelihood and occupational risks faced by sanitation and waste workers in their daily life.

The government’s intention for a sustainable management of waste cannot be denied. It implemented a number of projects to transform Dhaka into a clean city. However, these initiatives could not deliver the expected results. The Department of Environment (DoE) piloted the 3R strategy – reduce, reuse and recycle – for better waste management under a pilot project in 2012 at the cost of BDT 210 million (USD 2.5 million) utilising the Bangladesh Climate Change Trust Fund. Under the project, four types of waste bins colored green, yellow, red and blue were given to residential buildings in different parts of Dhaka to store organic, inorganic, hazardous and mixed wastes separately. The 3R method entailed organic household waste to be used to generate biogas and organic fertilizer, while inorganic waste like plastic and glasses was to be recycled. While cleaners practiced waste storage in the beginning, the momentum faded away primarily due to a lack of awareness and motivation of both city dwellers and waste collectors. More specifically, although the majority of households (63%) separated waste based on types through multiple bins inside the house, wastes were mixed up during disposal to collectors and at dumping areas (BIGD, 2015; Dhaka Tribune, 2015b). Most recently, both city corporations in Dhaka have approved the JICA-prepared master plan for better waste management titled the "Clean Dhaka Master Plan 2018-2032" which has also been submitted to the Ministry of Local Government and Rural Development for the government’s endorsement.

3. The Way Forward

The foregoing discussion shows that the situation of waste management in Bangladesh, particularly in Dhaka city, is becoming an alarming concern which requires immediate attention and sustainable solutions. To address this issue, three areas of interventions are recommended:

i. Policy changes: A comprehensive set of regulatory guidelines need to be developed for managing all types of wastes generated in cities, including municipal, medical and e-waste. Such guidelines have to deal with waste collection, segregation, transportation and disposal at various stages with proper safety measures. In addition, these guidelines should also include the provision of life insurance for waste workers, subsidies to green recycled products, fines for violating waste management norms and extended responsibilities for producers and consumers of electronic items.

ii. Structural changes: Ward-level primary waste collection needs to be strengthened with greater community participation, while secondary transfer and final disposal should be done by city corporations with increased human and technological efficiency. It is also necessary to create a community of practice and partnerships between relevant government and private entities, so that everyone can benefit from a sustainable waste management system.

iii. Changes in regular practices: Recyclable, kitchen and medical wastes should be stored, disposed of and transported in different colored bags/bins. An estimated 20–30% of the waste volume can be reduced for landfill disposal if waste segregation is done successfully. Landfill management should be

developed based on sanitary norms, long-term strategy as well as better equipment and human resources. Moreover, behavioral changes of waste generators and collectors regarding consequences of mixed storage and collection, random disposal and management difficulties should be targeted through the simultaneous implementation of legal, economic and persuasive instruments. Mass awareness campaigns can be promoted through a joint partnership between city authorities and NGOs.

Finally, waste management should be dealt through a holistic approach entailing environmental and climate change, health risks, urban livability and economic concerns. Such a holistic approach can draw the attention of policymakers to the urgency of the situation and promote the mobilisation of resources to prioritise waste management. Improvement in waste management can foster the achievement of SDG 11 (sustainable cities and communities) and help achieve other goals such as SDG 7 (affordable and clean energy). Suggested changes will provide the necessary incentives for all stakeholders to comply with and steer cooperation among stakeholders to develop structures and practices for sustainable waste management in cities. It is only through a collective and coordinated approach that cities in Bangladesh will become safe, liveable and resourceful.

Further Readings

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