Waste management system in Dhaka city refers to the collection, transportation and disposal of all wastes in the city. The place where waste is piled up for disposal is called landfill site. In 1991, the Environment Protection Agency (EPA) issued several guidelines for landfill site selection. Notable among them are: No water bodies can be located within 30 meters of a landfill site, no drinking water wells can be located within 160 meters and no houses, schools and parks can be located within 65 meters. However, none of the two landfill sites in Dhaka city (Matuail and Aminbazar) have been constructed according to this rule. Two common methods for waste management are Area Method and Trench Method. In the area method, piles of garbage are kept on the ground. After depositing daily, it is covered with a layer of soil. On the other hand, the trench method involves digging a hole in the ground and depositing the waste in it and covering it with soil. Area method is applied in the landfill sites of Dhaka city but at the end of the day it is left open instead of being covered with soil.

It is claimed by Dhaka South City corporation that nearly 76% of generated waste came from the residential sector, 22% came from the commercial sector, 1% from the institutional sector and the rest from other sectors. According to the World Bank survey, around 7 thousand metric tons of waste is generated in Dhaka city every day. Dumping is 3 thousand 800 metric tons. According to another private survey, 5 thousand 950 metric tons of household waste is generated every day. Besides, 1 thousand 50 metric tons of waste are produced from medical and commercial establishments and 400 metric tons from roads. 560 grams of waste is produced per capita in the city every day. Waste generated includes plastic, paper, glass, metal and organic waste (Rini, 2016).

The waste collection and management system in Dhaka exhibit significant disorganization and obsolescence compared to modern cities. The process involves three main stages: primary collection, secondary collection, and the final journey to landfills, all operating linearly. At the primary stage, child waste collectors known as tokais and rickshaw vans scour the streets for waste, leading to an unsightly scene of overfilled plastic sacks. The collected waste is dumped into insufficiently placed giant bins at secondary collection points, often remaining uncollected for days, posing health risks and creating an eyesore. Garbage-collecting trucks eventually transport the waste to landfills, emitting unpleasant odors and spilling garbage along the way.

These landfills, frequented by tokais, serve as hazardous grounds for scavenging recyclables. The entire process raises concerns about public health and environmental hazards, depicting a system in need of urgent modernization and improvement (The Daily Star, 2022)

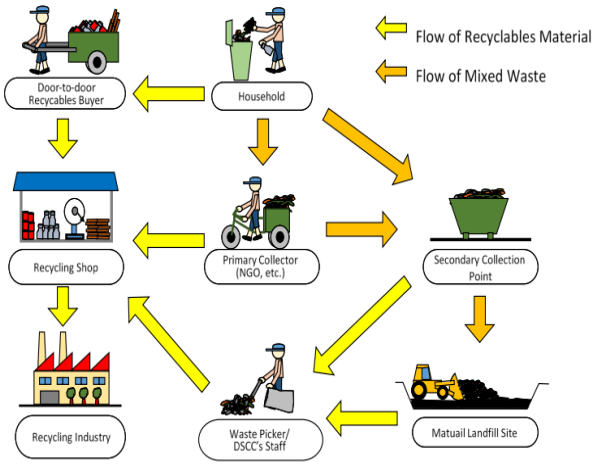

Fig. 3-17 Flow Diagram of Household Waste in DSCC

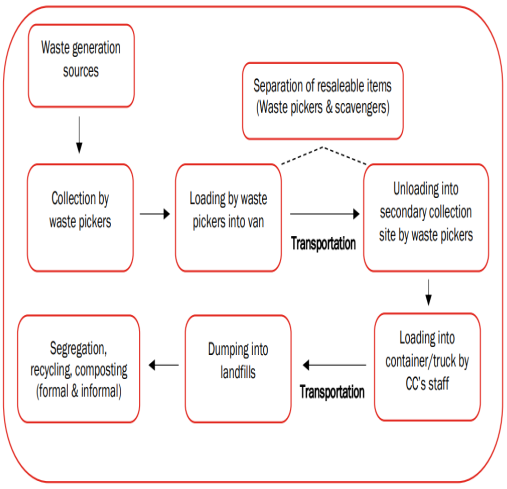

Figure 1: Waste Management Process in Dhaka City

Dhaka's waste reduction strategy consists of three components: policy changes, structural changes, and behavioral changes. Policy changes focus on comprehensive regulatory guidelines for waste collection, segregation, transportation, and disposal, with incentives like life insurance and green recycled products. Structural changes involve strengthening primary waste collection, promoting community participation, and implementing sustainable partnerships. Regular practices, such as using different colored bags, are encouraged to reduce landfill disposal by 20-30%. Behavioral changes are targeted through legal, economic, and persuasive instruments.(Islam, 2021).

Dhaka faces challenges in waste management due to inadequate infrastructure, rapid population growth, and insufficient waste segregation practices. Public awareness and industries contribute to environmental pollution and pollution. A comprehensive approach involving infrastructure development, population education, and strict enforcement of regulations is needed to address these issues effectively.

Dhaka's proposed digital waste management strategy uses IoT technology to address improper waste disposal. It promotes source-level waste segregation, compartmentalization, and color-coded bins. The "N0 waste!" mobile app rewards users for proper waste disposal, fostering community engagement. Smart secondary transfer stations and a cloud-based monitoring center ensure efficient waste collection, promoting transparency and economic growth (The Daily Star, 2023)

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