



Urban Solid Waste Problem

A Community Based Approach

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Urban Solid Waste : A Problem

Urban solid waste management has become a major concern for the cities and towns of Bangladesh. Municipal services in most cities and towns are already over-burdened, and simply cannot meet the growing demand for municipal services, resulting in unhygienic and filthy living condition in the neighborhoods.



Trends in Solid Waste

Most local governments and urban agencies have, time and again, identified solid waste as a major problem that has reached proportions requiring drastic measures. We can observe three key trends with respect to solid waste

- ❖ Increase in sheer *volume* of waste generated by urban residents
- ❖ Change in the *quality* or make-up of waste generated
- ❖ The *disposal* method of waste collected, by land-fill, incineration etc.



Solid Waste Management

- ❖ It is critical to adopt a broad approach in developing a working framework for solid waste management (SWM). This covers the social, economic, technology, political and administrative dimensions.
- ❖ The social dimension of SWM involves waste minimization
- ❖ The economic dimension of SWM involves waste recycling
- ❖ The technology dimension of SWM involves waste disposal; and
- ❖ The political and administrative dimensions cuts across all the three issues of minimization, recycling and disposal.



Solid Waste Management

- ❖ SWM is not an isolated problem that can be easily compartmentalized and solved with innovative technology or engineering.
- ❖ It is particularly an urban issue that is closely related, directly or indirectly, to a number of issues such as urban lifestyles, resource consumption patterns, jobs and income levels, and other socio-economic and cultural issues
- ❖ All these issues have to be brought together on a common platform in order to ensure a long-term solution to urban waste.



Limitations of the Traditional Approach

- ❖ There is a whole *culture* of waste management that needs to be put in place
- ❖ Spans from the micro-level of household and neighborhood to the macro levels of city, state and nation. The general assumption is that SWM should be done at the city-level, and as a result, solutions tried out have been essentially end-of-pipe

**** 'End-of-pipe' refers to finding solutions to a problem at the final stage of its cycle of causes and effects. In the case of urban waste, it means focusing on *waste disposal* rather than waste recycling or waste minimization**



Limitations of the Traditional Approach

- ❖ But this approach essentially misses the forest for the trees, in attempting piecemeal and ad hoc solutions to waste problems, instead of taking a long-term holistic approach.
- ❖ In reality there are a number of critical actions the need to be taken at each of the levels of household, neighborhood, city and nation.
- ❖ Action to be taken can have social, technology, economic, political or administrative dimensions.



Importance of the Community Level

- ❖ It is important that the right decision/action be taken/carried out at the right level.
- ❖ Thus, action at the household level are predominantly social, technology and economic in nature.
- ❖ Similarly action to be taken at the state and nation level are predominantly economic, political and administrative in nature.
- ❖ Action at the community level cuts across all five of them.



SWM Matrix

- ❖ The matrix that links the *dimensions* of decision-making (social, technology, economic, political and administrative) with the *levels* of decision-making (household, neighborhood, city, and nation) - helps in categorizing the decisions, action and related activities to be undertaken.



End of Pipe vs. Life Cycle

- ❖ There is a gradual shift from 'end-of pipe' solutions that focus on waste disposal, to a source based approach that is aimed at 'life-cycle' analysis.
- ❖ This places the responsibility not only on households, but also in manufacturers and retail businesses.
- ❖ Greater awareness at the local and community level has forced businesses and industries to take a more environmentally friendly approach to their activities, including better management of the wastes that they produce, using a more holistic life-cycle assessment
- ❖ LCA is a systematic set of procedures for compiling and examining the inputs and outputs of materials and energy and the associated environmental impacts directly attributable to the functioning of a product or service system throughout its life cycle



What is Needed

- ❖ As mentioned above, SWM is not an isolated, municipal problem that has to be 'done' by the local government.
- ❖ There is a need for a more comprehensive package of measures. Critical to this approach is to integrate SWM activities within the larger process of urban environmental management as well as the Communities



Target of the Community Based Approach

Based on previous experience in Bangladesh and comparable developing countries targets would be:

- ❖ *responsive*: balancing local needs with wider institutional, technical and environmental constraints;
- ❖ *equitable*: addressing the needs of all sectors of the community;
- ❖ *empowering*: motivating and organizing local people to help them to find solutions to problems at the local level;
- ❖ *decentralized*: into small managerial units or blocks over the whole city;
- ❖ *diverse*: experimenting with a range of technologies or processes rather than attempting to find one single solution applicable to all situations
- ❖ *flexible*: to allow for developments and modifications in approaches and activities.



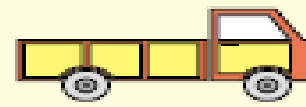
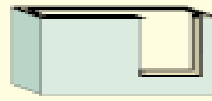
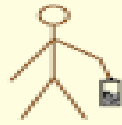
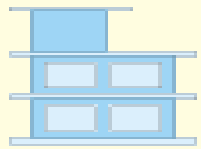
Waste Collection : Community Based Approach

COMMUNITY APPROACH

CONVENTIONAL APPROACH

Problems

Low motivation, traveling distance and social factors lead to disposal in open spaces, drains and around road-side bins.



Several road-side bins

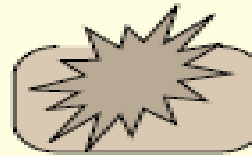
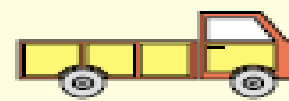
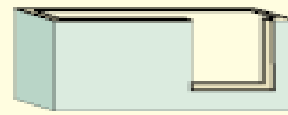
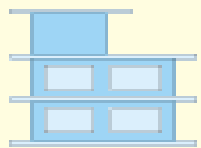
Fianl disposal site

Household Responsibility

City Corporation Responsibility

← Primary collection →

← Secondary collection →



Few transfer points

Fianl disposal site

Household responsibility

Community Responsibility

City Corporation Responsibility

Where Conventional Approach Fails ...

- ❖ In many cases the city corporation fails to provide a sufficient number of roadside bins or does not position them in convenient locations or fails to ensure that they are of an appropriate design. As a result householders may dump the waste in open spaces, drains or simply around roadside bins.
- ❖ Poor motivation for proper waste disposal can be due to low awareness of the hazards of irresponsible solid waste management or social factors that make it unacceptable for certain members of the household to take waste to the roadside bins.
- ❖ Delays in waste collection and transportation to the final disposal site by the city corporation also occur due to institutional or financial problems



The Community Approach Succeeds

- ❖ In Dhaka the city wards are divided into moderate to large areas called primary collection blocks. Waste generated in the home is stored and collected everyday by a primary collector who transports the waste to nearby transfer points, normally in a rickshaw van. This is primary collection and is the responsibility of the community.
- ❖ Transfer points are places where waste is unloaded from primary collection vehicles to be taken away by secondary transport. Several primary collection blocks are served by a transfer point.
- ❖ The waste is then collected from the transfer points and taken to the final disposal point by a large truck. This is secondary collection and is the responsibility of the city corporation.

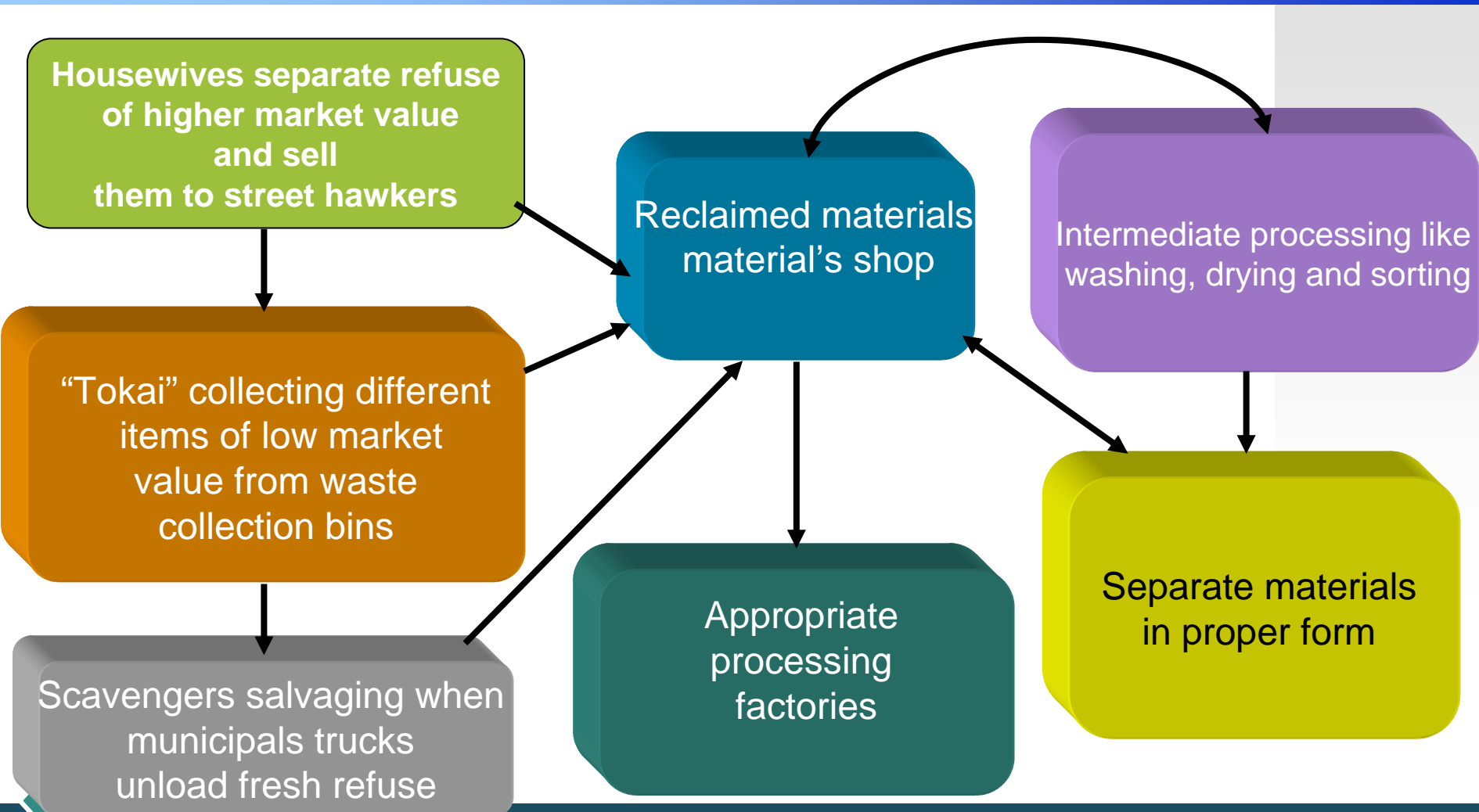


Is Recycling the Answer ? Role Played by the Community

- ❖ Solid waste like all kinds of papers, metals and glass with other valuables things including polythene / plastic bag have recycled and a group of people is engaged (locally called 'Tokai') to this profession for their income and daily life maintenance. Polythene bags are extensively used in all over Bangladesh since mid of 1970s and it is now an important problem of urban sewerage systems. It is randomly thrown here and there and blockage of the sewerage system and loss of soil fertility.
- ❖ In general, wastes having some market value are being reclaimed or salvaged in three stages
- ❖ In first stage, housewives separate refuse of higher market value such as papers, bottles, fresh containers, old clothes, shoes, etc. and sell them to street hawkers.
- ❖ In second stage, mostly children of slum dwellers 'Tokai' carry out salvaging by collecting different items of low market value from waste collection bins.
- ❖ Scavengers at the final disposal sites do the third stage of salvaging when municipal trucks unload fresh refuse.
- ❖ The reclaimed materials reach the waste and old materials shop through street hawkers who purchase old materials directly from households and through solid waste collectors who reclaim the materials from bins and final disposal sites.
- ❖ These reclaimed materials require intermediate processing like washing, drying and sorting. The refuse dealers separate the materials in proper form and sell them to consumers as well as supply them to appropriate processing factories for reuse as raw materials.



Overview of Solid Waste Recycling in Dhaka City



Problems in Recycling : Lack of Awareness

- ❖ Bangladesh has received a very good result of family planning activities, only due to the effort of awareness programs. Although more than 50% population is illiterate, but various awareness programs have developed knowledge and skill of family planning know-how to more than 95% of the population in Bangladesh.
- ❖ But in the case of personal hygiene including solid waste management, this awareness program as well as various formal and informal environmental educations is still at primitive stage in Bangladesh.



Problems in Recycling : Rapid Industrialization

- ❖ Dhaka has been the largest recipient of these poor migrants. With unabated concentration of people in the urban areas of Bangladesh, use of material products is increasing by the day causing the problems of waste management.
- ❖ Industrial backwardness and poor purchasing power of Bangladeshi people have, so far, helped in containing consumerism and material revolution in Bangladesh. But with the growing industrialization and globalization for the world market, the country Bangladesh is now also braced for an invading consumerism, with all its accompanying evils spoiling the environment.
- ❖ The early signs of a material revolution are already evident in Bangladesh cities and towns, particularly the over-crowded and huge urban centers like capital Dhaka.



Problems in Waste Collection

- ❖ **Lack of Logistic Support and Trained Manpower in the City Corporation.**
- ❖ **Lack of Technical Know-how.**
- ❖ **Corruption of Concerned Authority.**
- ❖ **Lack of Community Participation and Willingness to pay.**





Approach towards Mitigation

**Making Solid Waste
Collection Efficient : Is
There a Way ?**

Tires of Solid Waste Recycling

1

Pathway of Solid Waste itself.

2

Types of Processing Done at various stages

3

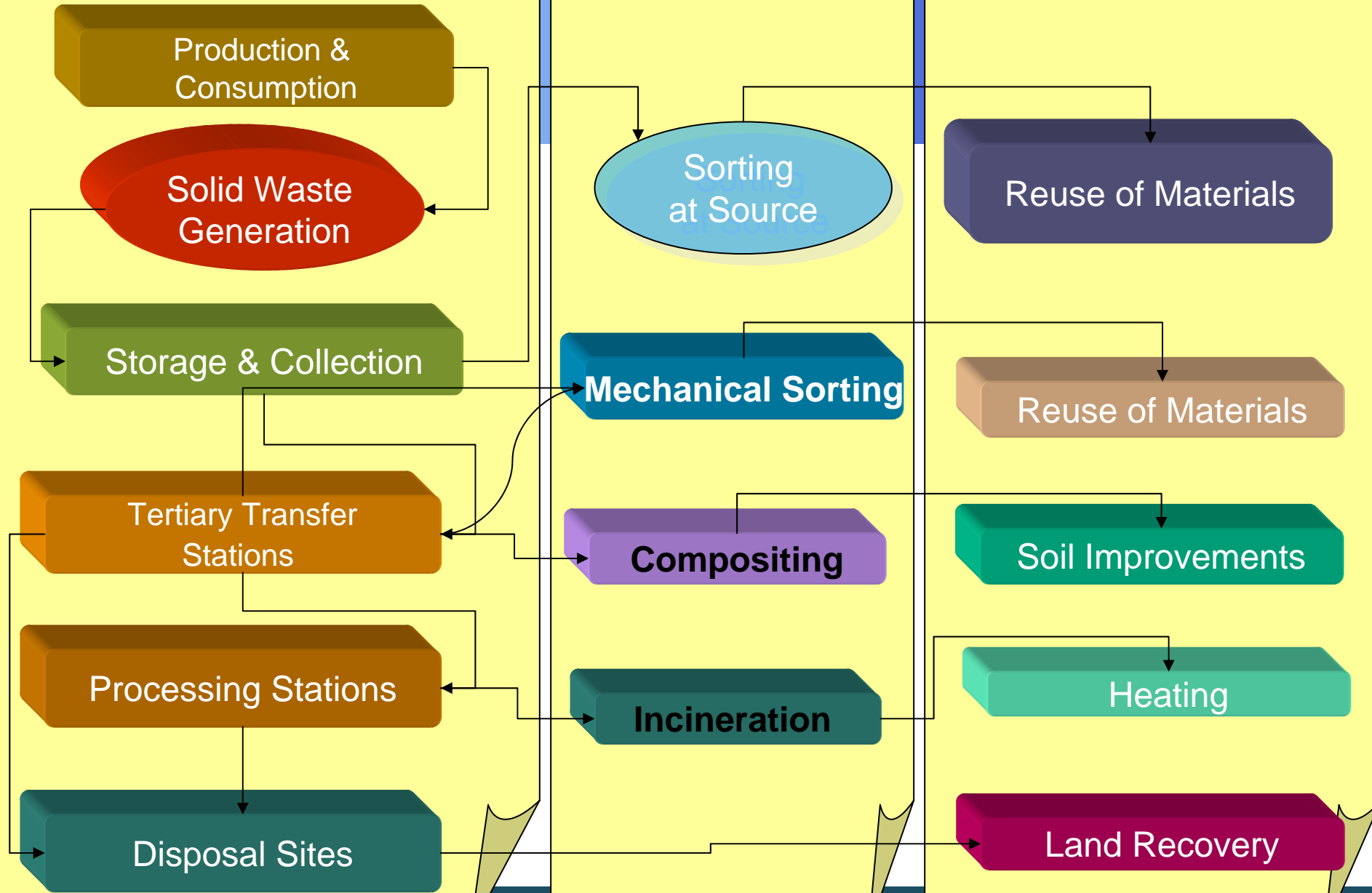
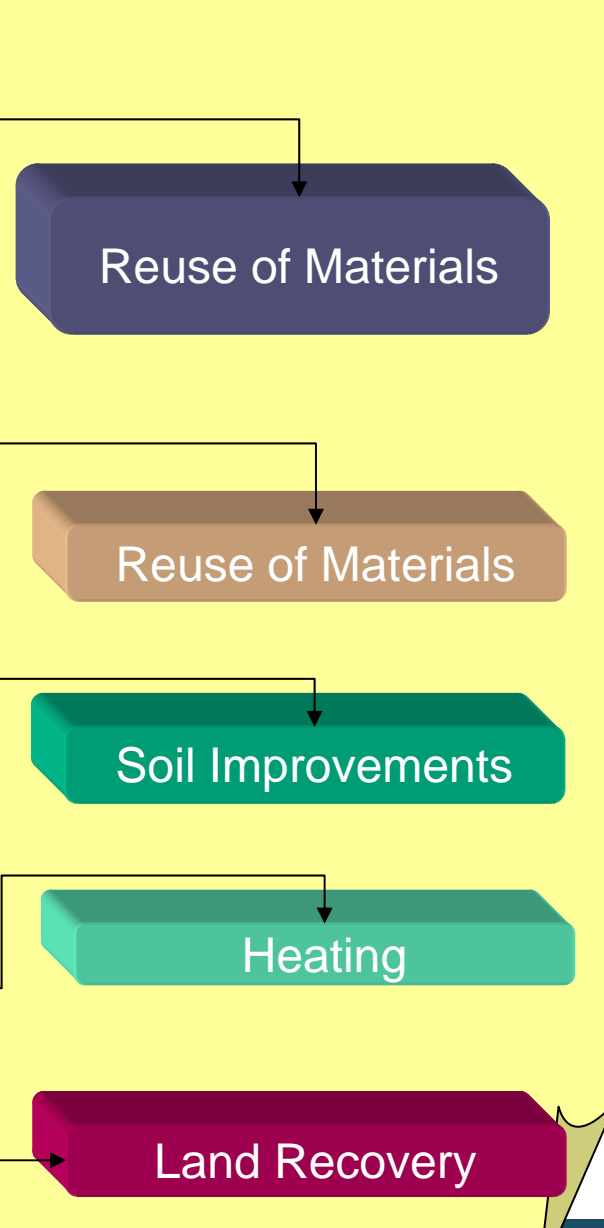
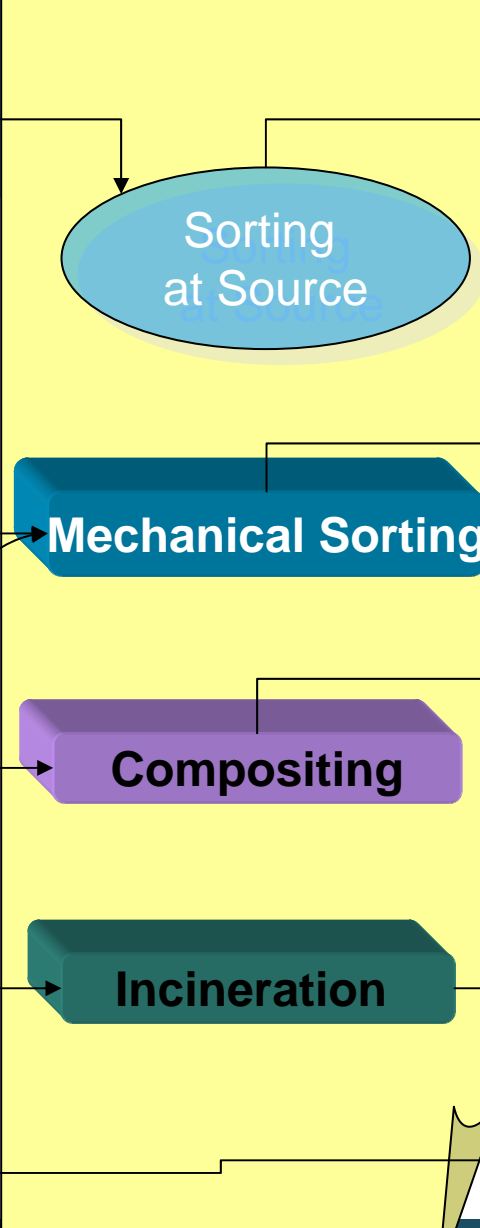
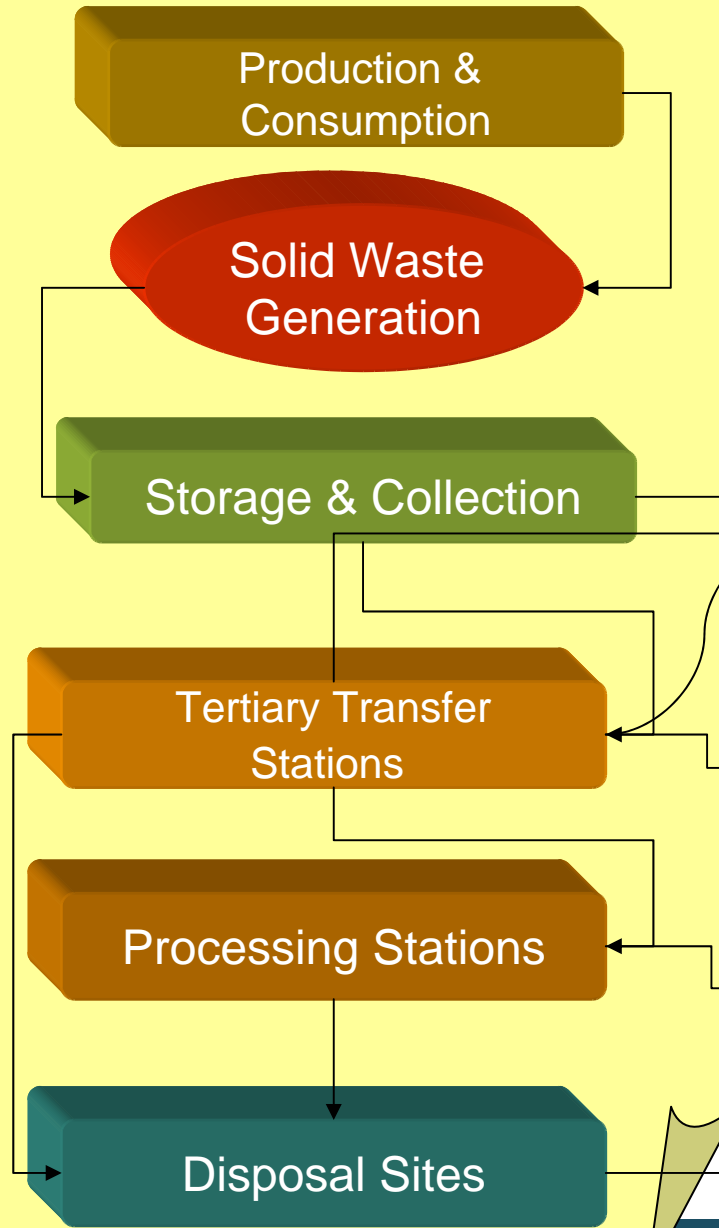
Resultant / Resource Recovery.



Pathway of Solid Waste

Types of Processing

Resource Recovery





Solid Waste Collection, Dumpsters, Collection Points & Disposal in Dhaka City

Real Life Pictures







মদিতা
ডিসক















Door to Door
Waste
Collection

















