WASH Sector Cox’s Bazar
Bangladesh
Solid Waste Management Strategy
Part 1 (of 2): Illustrations
July 2021
The SWM Strategy of the WASH Sector

Part 1: Illustrations

Part 2: Text Document

WASH Sector Cox’s Bazar
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Solid Waste Management Strategy
Part 1 (of 2): Illustrations
January 2021

brief graphic summary of the strategy...

in case more detail is needed...

Why is Solid Waste Management (SWM) important?

SWM is **not** about the perception or acceptance of solid waste pollution!

Unsafely managed solid waste can lead to...

- ...the emission of **toxic fumes** from uncontrolled waste burning
- ...breeding grounds for **disease vectors** such as rodents, insects...
- ...the pollution of **drinking water sources** and **food sources**
- ...**marine plastic pollution**
- ...the **emission of greenhouse gases**
# Objectives of the SWM Strategy

## Overall objectives

| Minimization of hazardous impact of domestic solid waste on human health and environment |

## Specific objectives

| Reduction of waste generation |
| Minimization of need for safe disposal (through waste avoidance, reuse & recycling) |
| Safe disposal of residual waste in sanitary landfill |
| Awareness raising and behaviour change towards adequate waste handling |
# Working Principles of the SWM Strategy

**Working principles (in order of priority)**

<p>| 1) Avoidance of waste generation (especially inorganic and non-recyclable waste) |
| 2) Establishment of a complete SWM system (for waste which cannot be avoided, as proposed under 1.): waste segregation &gt; collection &gt; transport &gt; value recovery &gt; safe disposal |
| 3) Ensuring adequate waste handling (through awareness raising and behaviour change) |
| 4) Source segregation of waste (and maintaining of segregation throughout SWM system) |
| 5) Reuse of segregated waste |
| 6) Recycling of segregated waste |
| 7) Safe disposal of residual waste (which cannot be avoided, reused or recycled) |</p>
<table>
<thead>
<tr>
<th>TYPES of Waste:</th>
<th>LOCATION:</th>
<th>CATEGORIES of Waste:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Solid Waste</td>
<td>households, restaurants, shops, markets...</td>
<td>organic material (from kitchen &amp; garden), recyclables, residual waste (inorganic &amp; non-recyclable)...</td>
</tr>
<tr>
<td>Medical Waste</td>
<td>hospitals, medical wards, practices...</td>
<td>sharps, infectious waste, pharmaceuticals, general waste...</td>
</tr>
<tr>
<td>Construction Waste</td>
<td>construction sites, demolition sites...</td>
<td>bricks, concrete, metal, wood, plastics...</td>
</tr>
<tr>
<td>Electronic Waste</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Industrial waste</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

**FOCUS OF SWM STRATEGY OF WASH SECTOR**

**NOT PART OF SWM STRATEGY**
Waste / Resource Flowchart

Domestic Solid Waste

- Organics
  - Fast-decomposing (kitchen & garden waste...)
  - Slow-decomposing (bamboo, wood, coconuts...)
- Inorganics
  - Residual waste
    - Non-organic & non-recyclable
      - Plastic bags
        - Single-use, lightweight

Material Recovery Facility (MRF)

- Recyclables
  - (PET, metal, cardboard...)

Informal recycling

- Use as fuel
  - Use in gardening...
- Composting

Further segregation of organics and inorganics at MRF:

- According to technical note of WASH sector
- Use as fuel
  - (not at household level)
- Scrap dealers
- Recycling industries
- Final disposal
  - Sanitary Landfill
  - Local Plastic Processing Plant

- Plastic bags
  - Single-use, lightweight

- Plastic items or pellets

Collection of non-recyclables for upcycling projects

Upcycling

Note: other waste types (medical, electronic, waste from drainage systems etc.) are not included in this flowchart.
## Importance of Waste Segregation

<table>
<thead>
<tr>
<th>If waste is segregated...</th>
<th>...waste becomes a valuables resource!</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>...SWM becomes a business opportunity!</td>
</tr>
</tbody>
</table>

If waste is **not** segregated...

| ...waste remains waste, and needs to be disposed |
| --- | --- |
| ...unsafe waste disposal is the easiest and cheapest approach! |
| ...very likely, waste becomes a threat to human health and environment! |

### Waste Segregation at Source

Waste segregation at source is the most effective approach...

- ...recyclables are not soiled, and can easily be recovered
- ...organic material is not contaminated with plastics etc.
**Types of Waste Collection:**

1. **Household collection** (or collection at shops, markets, restaurants...) is labour-intensive, but facilitates waste segregation at source!
2. **Collection points** are ideally supervised (for waste segregation)

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**HOUSEHOLDS, SHOPS MARKETS, RESTAURANTS ...

Domestic Solid Waste**

- **organics**
  - waste segregation at source
- **inorganics**

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**COLLECTION POINT**

- **organics**
  - segregated transport by **HOUSEHOLDS, SHOPS, MARKETS, RESTAURANTS...**
- **inorganics**

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**MATERIAL RECOVERY FACILITY (MRF)**

- **organics**
- **inorganics**

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**FINAL VERSION**

(Choice for collection is with the responsible organization)
Camps: Setup for Waste Sorting, Processing and Disposal

Per camp:
Material Recovery Facility (MRF):
• At least one MRF per camp
• MRF is in contact with sanitary landfill and scrap dealers: Several MRFs per landfill, and several scrap dealers per MRF is possible.
• Only residual waste from MRF is brought to sanitary landfill
• MRF should be located close to bigger roads to facilitate logistics

Per household, restaurant, shop:
• (at least) two colour-coded bins (ca. 15 L): one for organics, one for inorganics

Per market:
• (at least) two colour-coded bins per market stall (if necessary, use container)

Waste collection points:
• Number of points depends on storage volume, collection interval & type of collection
• Suitable accessibility for waste disposal & collection
• Protected again climate & animals
## Camps: Tasks, Responsibilities and Roles within SWM

<table>
<thead>
<tr>
<th>Department of Environment DoE</th>
<th>Area Focal Agency</th>
<th>Department of Public Health Engineering DPHE</th>
<th>Majhees &amp; Camp Block Leaders</th>
</tr>
</thead>
</table>
| • Provision of clearance certificates for SWM infrastructure... | • Monitoring of SWM implementation  
• Ensure accountability of CFA & BFA... | • Technical support and coordination... | • Support SWM initiatives... |

<table>
<thead>
<tr>
<th>WASH Sector Coordination</th>
<th>Recycling Industry</th>
<th>Camp in Charge CiC</th>
<th>Camp Focal Agency (CFA)</th>
<th>RRRC</th>
</tr>
</thead>
</table>
| • Provision of coordination & guidance: technical notes, SWM TWiG... | • Take over of recovered recyclables... | • Support SWM initiatives and provision of land... | • accountable for SWM  
• Operation of MRF... | • Ensuring that SWM receives necessary attention and land... |

<table>
<thead>
<tr>
<th>Households, shops, markets, restaurants</th>
<th>Other humanitarian Sectors</th>
<th>Block Focal Agency (BFA)</th>
</tr>
</thead>
</table>
| • Waste segregation at source  
• Correct disposal at collection points (or)  
• handing over of waste to collection teams... | • Coordination: cleaning campaigns, SWM-related livelihood activities, land use... | • accountable for SWM  
• Collection of waste  
• Transport to MRF... |