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Overview of Solid Waste Management in Singapore

Over the years, Singapore’s waste disposal quantities have increased significantly from 1,260 tonnes per day in 1970 to more than 8,100 tonnes per day in 2017. This is projected to continue to increase in tandem with population and economic growth.

Since 1979, much land and resources have been used to build waste-to-energy incineration plants and landfills to manage the increasing amount of waste disposed.

The waste-to-energy incineration plants reduce the volume of waste by up to 90% to reduce space needed to landfill the incineration ash, and recover energy to supply up to 2% of Singapore’s electricity demand. Ferrous and non-ferrous metals are also recovered from the incineration bottom ash for recycling.

Apart from incineration ash, offshore Semakau Landfill, the only landfill in Singapore, receives only non-incinerable waste to further conserve landfill space.

Notwithstanding, if waste quantities continue to grow, there would be a need to build more waste-to-energy incineration plants and offshore landfills. This presents a key challenge for land-scarce Singapore.

As about half of the waste in Singapore is generated from households, by practising the 3Rs (Reduce, Reuse, Recycle), we can greatly reduce the amount of waste sent to the waste-to-energy plants and landfill.
CHAPTER 1: INTRODUCTION

Recycling in HDB and Landed Properties

To provide residents a convenient means to recycle, Public Waste Collectors (PWCs) appointed by National Environment Agency (NEA) are required to provide recycling bins at each HDB block and landed home.

Recycling in Condominiums and Private Apartments

The PWCs also provide recycling bins to condominiums and private apartments that have not opted out of the public waste collection scheme.

Those that opt out of the public waste collection scheme are required to provide their own recycling receptacles and send the recyclables for recycling as required under Section 10(1)(c) and Section 10(2) of the Environmental Public Health Act (Cap 95) respectively.
A structured waste recycling programme consists of the following components:

- Provision of recycling receptacles
- Storage and consolidation of recyclables
- Engaging a recyclables collector

**Provision of Recycling Receptacles**

(i) Types and Capacity of Receptacles

Receptacles can be provided in the form of bins or bags for the deposit of recyclables\(^1\) i.e. papers, plastics, metals and glass. The type of receptacles should be standardized across the estate, in either commingled (all types of recyclables can be deposited in a bin) or segregated form.

![Commingled Recycling bins](image1)
![Segregated Recycling bins](image2)
![Recycling Bags](image3)

The recycling receptacles should be of sufficient numbers, size and capacity to prevent any overflowing.

Based on the Code of Practice on Environmental Health (COPEH), the recyclables storage capacity shall be calculated as 30% x 20L x number of dwelling units, subject to a minimum of 240L.

(ii) Labelling and Usage of Receptacles

All receptacles are to be clearly labelled to indicate what can and cannot be deposited for recycling.

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\(^1\)Refer to Annex A for the categories of recyclables
Storage and Consolidation of Recyclables

Receptacles for recycling can be provided either by the MCs/MAs or the collectors. Different types of recyclables collection and storage system can be adopted.

Recycling bins system

In cases where recycling bins are used, the following are the different systems:

i) Multiple intermediate recycling points with recyclables collected by collector from a centralised location (i.e. designated main recycling point under the COPEH)

To enable residents to recycle conveniently, MCs/MAs should provide intermediate recycling bins at every residential block near the lift lobby, stairwell or letter box area and where communal facilities are located.

Arrangements will have to be made to consolidate the recyclables from these intermediate recycling bins into the set of recycling bins placed at a centralised location that allows the collector to conveniently and regularly collect using the same road access as that used by the refuse collection vehicle.

This system has to be adopted by condos served by the Public Waste Collection scheme as PWCs will only collect recyclables from the centralised location.

ii) Multiple intermediate recycling points, with recyclables collected directly by collector from intermediate recycling bins

Similar to (i), MC/MAs shall put in place intermediate recycling bins at every residential block and where communal facilities are located. However, MCs/MAs can make special arrangement with their collector for the collector to directly collect recyclables from the intermediate recycling bins regularly.

Recycling bags system

In cases where recycling bags are adopted, the following are the different systems:

iii) Door-to-door collection of recyclables using recycling bags by collector

The collector can be engaged for door-to-door collection of the filled recycling bags on a scheduled day, as an agreed arrangement between the MCs/MAs and the collector.

iv) Recycling bag system with designated main collection points/recycling corner

MCs/MAs can make special arrangement with their collector to collect the filled recycling bags from receptacles for recycling placed at designated main collection points/recycling corner within the estate (e.g. near the security guard house, bin centre) on a scheduled date, instead of the door-to-door collection of recyclables. Residents shall be informed to put out the bags at the designated main collection points/recycling corner on the scheduled date.

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From 1 Aug 2018, condos are required to provide a recycling point at each residential block for depositing recyclables.
Recycling chute system

v) This system applies to newer estates which have buildings installed with recycling chutes.

MCs/MAs could either make arrangement to empty and consolidate the recyclables collected in the bin under each chute into a set of recycling bins placed in such location that allows the collector to conveniently and regularly collect using the same road access as that used by the refuse collection vehicle or make special arrangement with the collector to collect directly from the bin under each chute.
CHAPTER 2: SETTING UP A STRUCTURED WASTE RECYCLING PROGRAMME IN CONDOMINIUMS/PRIVATE APARTMENTS

Engaging a Recyclables Collector

A licensed general waste collector (GWC) has to be engaged in cases where the recyclables collection and transportation involves payment by the condominium management or other remuneration (whether monetary or otherwise) to the collector.

i) Condominiums which have opted into the Public Waste Collection scheme

For condominiums or private apartments which have their waste collected by the appointed Public Waste Collectors, their MCs/MAs shall work with their Public Waste Collector to arrange for the collection of recyclables from a centralized location in their estate.

ii) Condominiums with their own waste collection arrangements

Condominiums and private apartments which have their own private waste collection arrangements should engage Class A general waste collector licensees to collect and send their recyclables to recycling facilities if the collector receives payment or other remuneration (whether monetary or otherwise) for the services rendered.

MCs and MAs may be able to reap synergy by integrating recycling and waste collection or cleaning services in the same contract:

In such cases, the following points should be taken into considerations:

- Provision of receptacles including intermediate recycling bins which should be properly labelled to reflect the collection of the required types of recyclables (paper, metals, plastics and glass)
- Collection of recyclables at a suitable frequency such that there is no overflowing at all times
- Provision of monthly tonnages of collected recyclables
- Cleaning and maintenance of the recycling bins
CHAPTER 3: SUSTAINING A STRUCTURED WASTE RECYCLING PROGRAMME IN CONDOMINIUMS/PRIVATE APARTMENTS

Role and Responsibility of MCs/MAs

The MCs/MAs play a crucial role in ensuring the success of the recycling programme and should take note of the following:

• Provide clear contract specifications on recycling in the collection contract (Only for condominiums or private apartments not in the Public Waste Collection scheme)

• Spell out clearly and give constant reminders to the cleaning contractor on the dos and don’ts of their workers if they are involved in transferring the recyclables within the estate, for example:
  - Forbid the workers to remove recyclables from recycling bins and keep them for their personal gains
  - Forbid the workers to mix recyclables with normal refuse
  - Maintain the cleanliness of recycling bins
  - Notify MCs/MAs on any overflowing of recycling bins

• Provide documentation on working relationship and procedure among waste/recycling collector, management, and cleaning contractor as necessary.

• Communicate to all parties (e.g. waste collector, recyclable collector, cleaners and residents) information on the recycling programme – e.g. locations of bins, items that can be deposited, name of collector, collection frequency

• Promote and educate residents on recycling through circulars, notices, posters and/or exhibition panels
  Some information\(^3\) that could be shared include:
  - Locations of recycling bins
  - Items that can be recycled
  - Dos and Don’ts of recycling
  - Recycling process

• Work with recycling collector to monitor and improve the performance of the recycling programme

3R poster
CHAPTER 3: SUSTAINING A STRUCTURED WASTE RECYCLING PROGRAMME IN CONDOMINIUMS/PRIVATE APARTMENTS

Role and Responsibility of Residents

Residents should separate their recyclables from waste. Inconsiderate actions (e.g. depositing non-recyclables into recycling bins, putting recyclables outside recycling bins, dumping furniture waste or any bulky items indiscriminately outside recycling bins, thus dirtying the area) could jeopardize the recycling programme.

Role and Responsibility of Recyclables Collector

The collector should comply with all specifications stated in their contract to ensure all recyclables deposited in the receptacles are sent to recycling facilities.

Posters and exhibition panels (loan without charge) can be obtained from NEA. Educational materials such as 3R posters and guide for households can be downloaded from http://www.nea.gov.sg/energy-waste/3rs/waste-minimisation-and-recycling
CHAPTER 4: CONCLUSION

Under section 10(1)(c) and 10(2) of the Environmental Public Health Act (Cap 95), condominiums and private apartments are required to provide recycling receptacles and send the recyclables for recycling. A structured waste recycling programme can only be set up with the cooperation and commitment from the various stakeholders, i.e. the MAs/MCs, residents, cleaning contractor and recycling/waste collector. A step-by-step chart is created to sum up the concepts mentioned in the guidebook for easy referencing.


NEA Guidebook on Setting Up a Structured Waste Recycling Programme in Condominiums and Private Apartments
## Annex A – CATEGORIES OF RECYCLABLES

### Categories of Recyclables as specified in First Schedule of the Environment Public Health (General Waste Collection) Regulation

<table>
<thead>
<tr>
<th>Recyclables</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Paper products</td>
<td>Newspaper, computer printouts, writing paper, envelopes, car park coupons, brochures or pamphlets, magazines, books, cardboard and paper packaging (such as cereal boxes and drink cartons) and other paper products but excluding tissue paper and paper food wrappers.</td>
</tr>
<tr>
<td>2. Metal products</td>
<td>Cans or containers made of metal such as soft drink cans, beer cans, milk powder tins and food cans.</td>
</tr>
<tr>
<td>3. Plastic products</td>
<td>Bottles or containers made of plastic such as detergent containers, milk containers, mineral water bottles, soft drink bottles, juice bottles, plastic bags, plastic packaging and other plastic products but excluding styrofoam, disposable cutleries and crockeries.</td>
</tr>
<tr>
<td>4. Glass products</td>
<td>Jars, wine bottles and beer bottles but excluding light bulbs, window glass, porcelain, ceramic and fish tanks.”</td>
</tr>
</tbody>
</table>

1. **MC/MA to approve introduction of structured waste recycling programme in the estate.**

2. **Work with the recyclables collector on the implementation details of programme (e.g. recyclable collection system, frequency of collection). Obtain recycling proposal.**
   Note: A licensed general waste collector (GWC) has to be engaged in cases where the recyclables collection and transportation involves payment or other remuneration (whether monetary or otherwise) by the condominium management to the collector.

3. **MC/MA approves recycling proposal and confirm on implementation date of programme.**

   - Brief cleaning contractor of their roles (forbid cleaners from removing recyclables from the estate for their personal gains, maintain the cleanliness of recycling bins etc.)
   - Send circulars/notices to inform and encourage residents to participate in recycling programme. Include locations of recycling bins and the list of recyclables that can be deposited.
   - Display posters regarding recycling on notice boards/lift landings or other appropriate places.

4. **Start of waste recycling programme**

   Monitoring and sustaining structured waste recycling programme.
   - Send circulars/notices annually bearing message on 3Rs (Reduce, Reuse, Recycle)
   - Put up posters and/or exhibition panels on recycling
   - Incorporate recycling in daily operation (e.g. encourage recycling of waste generated at communal facilities areas)
   - Work with recycling company to organize activities or events related to recycling

For more information, please refer to Chapter 2 on **SETTING UP A STRUCTURED WASTE RECYCLING PROGRAMME IN CONDOMINIUMS/PRIVATE APARTMENTS**

For more information, please refer to Chapter 3 on **SUSTAINING A STRUCTURED WASTE RECYCLING PROGRAMME IN CONDOMINIUMS/PRIVATE APARTMENTS**