

1 INTRODUCTION

1.1 Overview of Solid Waste Situation in Singapore

Solid waste in Singapore has increased six-fold over the past 30 years. At this rate of increase, we will need to build a new incineration plant every 5-7 years and a new landfill the size of Sentosa Island every 25-30 years. This is not sustainable. Singapore has therefore adopted a waste minimisation and recycling approach as a long-term solution to address Singapore's solid waste management needs.

About half of the solid waste in Singapore comes from households. As refuse collection and disposal cost will increase with growing volume of waste produced, more waste from households would mean that each household has to eventually pay more.

By consciously reducing (e.g Use less plastic bags, use reuseable bags, choose products with less packaging, etc), reusing and recycling our household waste, we can greatly reduce the amount of household waste we collect and dispose of per day. Separating recyclables from household waste and recycling them can help to save our precious resources and enhance the image of the estate as being environmentally proactive.

1.2 Recycling in HDB and Landed Properties

The National Environment Agency (NEA) launched the National Recycling Programme (NRP) in April 2001 to HDB and private landed estates to provide the residents a convenient means to recycle. In the NRP, the appointed public waste collectors (PWCs) provide recycling bags or bins to households to put in their recyclables such as paper, metal cans, plastic and glass bottles and clothing and collect them every fortnightly on pre-determined days.

In 2007, to complement the fortnightly collection of recyclables, the NEA has also worked with the PWCs to place 1,600 centralised recycling depositories at HDB estates.

1.3 Recycling in condominiums/private apartments

Condominiums and private apartments are not included in the National Recycling Programme as they are managed by their respective Management Corporations (MCs) and Managing Agents (MAs) who are empowered to decide whether to set up receptacles for recycling within the estates for residents.

It is however important to note that under the Building Maintenance and Strata Management Act & Regulation, it is mandatory for MCST constituted on or after 1 April 2005 to separate and prepare recyclable materials or waste intended for recycling.

In addition, from 1 Nov 08 onwards, under section 10 (1)(c) of the Environment Public Health Act (Cap 95), when required in writing, it is mandatory for all condominiums and private apartments to have receptacles within the estate for the collection of recyclables like paper, plastic, metal and glass products for recycling. As required under the Environmental Public Health (General Waste Collection) Regulations (Cap 95, Regulation 12), all recyclables that have been deposited in any receptacle, which is referred to in section 10(1)(c) of the EPHA or provided in any residential property for the purpose of recycling, shall be sent to a recycling facility for recycling. Collection of such recyclables for payment or other remuneration shall only be done by licensed General Waste Collector.

This guidebook serves to assist MCs/MA in the setting up of structured waste recycling programme within their estate, in compliance with the Environment Public Health Act and Regulation

2 SETTING UP STRUCTURED WASTE RECYCLING PROGRAMME IN CONDOMINIUMS/ PRIVATE APARTMENTS

2.1 Structured Waste Recycling Programme – basic components

The categories of recyclables are as specified in First Schedule of the Environment Public Health (General Waste Collection) Regulation (Cap 95, Regulation 12) and are as reproduced here in Figure 1 (Refer to Annex A) for easy reference

MCs/MAs shall make the following arrangement to set up a structured waste recycling programme,:

- a) Provide receptacles in the form of bins or bags for the deposit of paper, plastics, cans and glass for recycling in commingled or sorted form. Details are as follow:-
 - The recycling bins or bags shall be of sufficient numbers, size and capacity to prevent overflowing at any point of time. The numbers, size and capacity can be based on the estimated output of recyclables, to be calculated below:-

Based on the refuse output in the Code of Practice on Environmental Health, the refuse output for residential premises is calculated to be 20L per day per dwelling unit. The daily recyclables output shall then be computed to be either **an additional** 30% by volume of the daily refuse output estimated above or 240L/d of recyclables, whichever is higher.
 - Recycling bins shall be placed in prominent locations at the following common areas within the premises and shall be accessible by all persons residing within the premises at all times

- Unless an alternative arrangement on the location(s) from which recyclables shall be collected from the premises has been agreed with the licensed general waste collector engaged to collect and transport recyclables from the premises, the owner or occupier of premises shall consolidate and properly store all the recyclables which shall be placed in such location that allows the licensed general waste collector to collect using the same road access as that used by the refuse collection vehicle.
 - Refer to section 2.2 for examples on approaches to adopt to set up a good network of receptacles for recyclables collection and storage
- b) Engage a collector to collect and transport recyclables deposited in receptacles from the estate to recycling facilities. 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.
Refer to section 2.3 on how to engage collector for collection and transportation of recyclables

In addition, besides putting in place adequate recycling receptacles and logistics arrangement, MCs/MAs should also consider the following:-

- a) Put in place measures to keep the receptacles in a clean and sanitary condition and in good repair at all times and replace once not in good condition.
- b) Provide adequate information* on recycling to inform and educate residents on the recycling programme so as to ensure that the recycling programme set up is sustainable.

* Posters and exhibition panels (loan without charge) can be obtained from NEA. Materials can be viewed at http://app.nea.gov.sg/cms/htdocs/category_sub.asp?cid=39

2.2 Setting up a good network of receptacles for recyclables collection and storage

Receptacles for recycling can be provided by the MCs/MAs or if possible, arranged by the MCs/MAs with their collector to provide. These receptacles for recycling shall be properly labelled.

Some examples on the different types of recyclables collection and storage network/system within estate are as follows:-

i) Drop-off bin system (i.e designated main recycling corner under the COPEH)

At least 1 set of recycling bins shall be 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. These recycling bins shall also be accessible to residents at all time.

ii) Drop-off multiple intermediate recycling bin system, with recyclables collected by collector from one consolidation point (i.e designated main recycling corner under the COPEH)

To enable residents to recycle conveniently, MC/MAs can choose to provide a number of intermediate recycling bins at strategic locations (e.g. near letter box, at lift lobby, outside clubhouse, at carpark, near security guard house, near bin centre) within the estate. Arrangement will have to be made to subsequently consolidate all the recyclables collected in these intermediate recycling bins into the 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.

iii) Drop-off multiple intermediate recycling bin system, with recyclables collected directly by collector from intermediate recycling bins

Similar to (ii), MC/MAs can put in place a number of intermediate recycling bins for residents to recycle conveniently. However, MC/MAs can make special arrangement with their collector for the collector to enter premise to regularly and directly collect recyclables from the various intermediate recycling bins.

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

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

v) 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 scheduled date.

vi) Recyclables chute system

MCs/MAs are encouraged to provide additional receptacles for recycling based on any of the above examples, in addition to the recyclables chute system.

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For estate **without centralised** recyclables chute system, MCs/MAs could either make the arrangement to empty and consolidate the recyclables collected in the bin under each chute into the 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.

2.3 Engaging collector to collect recyclables deposited in receptacles for recycling and transport to recycling facilities

i) For Opted in condominiums

For condominiums or private apartments that have opted in to the Public Waste Collection scheme, MCs/MAs shall only work with their Public Waste Collector (PWC) or PWC's appointed permit holder to arrange for collection of recyclables deposited in receptacles for recycling from their estate and transporting to recycling facilities as only permit holders are allowed to collect recyclables deposited in the receptacles.

ii) For Opted out condominiums

To set up a sustainable structured waste recycling programme in condominiums or private apartments, which have their own private waste contract, MCs and MAs shall engage any licensed general waste collector (Type A) to collect recyclables deposited in receptacles for recycling from their estate and transport to recycling facilities if there is any payment by the condominium management or other remuneration (whether monetary or otherwise) to the collector.

MCs and MAs are encouraged to integrate recycling services into either their waste collection or cleaning contract. MCs/MAs may like to take into consideration the following points to include in the contract:

- Provision of receptacles of appropriate design, volume and numbers (this could be omitted if the condominium management decides to purchase their own recycling bins.)
- Labelling of receptacles for recycling with appropriate stickers
- Placement of receptacles for recycling at strategic locations or centralised locations in the estate

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- Location from which the collector is able to collect the recyclables from
- Collection of recyclables at a suitable frequency agreed by condominium management
- Monthly data collection of amount of recyclables
- Cleaning and maintenance of the recycling bins

The above mentioned integrated waste management and recycling programme has the following advantages:-

- By recycling, the proportion of waste disposed of would be less. This is an incentive for the waste management company to provide recycling at minimal or no cost.
- One company is responsible for all issues related to waste.
- Meet the needs of 'green' residents and is viewed as a value-added service to residents
- Minimise or avoid conflicts between cleaners, waste collectors and recycling company over collection of recyclables
- Enhance the image of the estate as one with environmentally responsible residents

3 SUSTAINING STRUCTURED WASTE RECYCLING PROGRAMME IN CONDOMINIUMS/ PRIVATE APARTMENTS

3.1 Role and Responsibility of MCs/MAs

The MCs/MAs play a critical role in ensuring the success of the structured waste recycling programme and should note the following:-

- Provide clear contract specifications on recycling in the waste collection contract (*Only for condominiums or private apartments that did not opt in to Public Waste Collection scheme*)
- Spell out clearly to the cleaning contractor what their workers are to do or not to do, for example
 - Ensure that recyclables put out by residents are brought to the designated collection points for collection by the recycling company.
 - Forbid the workers to remove recyclables from the estate (e.g. newspaper, drink cans, etc) and keep them for their personal gains.
 - Maintain the cleanliness of recycling bins.
 - Notify MCs/MAs on any overflowing of recycling bins.
- Provide documentation on any agreed workings related to recycling among waste collection company, management, cleaners and/or other contractors
- Communicate to all parties (e.g. waste collector, cleaners, recycling company and residents) on the new recycling programme – e.g. locations of bins, what can be put inside, who will collect, etc.

- Constantly remind all parties on their roles (e.g. send circulars and/or notices, display posters and/or exhibition panels to create awareness on recycling among residents, remind cleaners not to pilfer from recycling bins)
- Work with recycling company to monitor and improve the performance of the recycling programme

3.2 Role and Responsibility of Residents

Residents should separate their recyclables from waste. Inconsiderate actions (e.g. putting recyclables outside recycling bins, dumping furniture waste or any bulky items indiscriminately outside recycling bins, thus dirtying the area) could jeopardise the recycling programme set up. The common types of recyclables acceptable for recycling are shown in Figure 1 (Refer to Annex A).

3.3 Role and Responsibility of Recycling Company and Cleaning Company

The recycling company and the cleaning company should comply with all specifications stated in their contract to ensure all recyclables deposited in the recyclables are sent to recycling facilities

4 Conclusion

Structured waste recycling programme can only be set up with the cooperation and commitment from the various stakeholders: the MAs/MCs, residents, cleaning company and recycling/waste company. This guidebook is developed to assist MAs/MCs in setting up and sustaining the structured waste recycling programme in their estate, in compliance with with the Environment Public Health Act and Regulation. For easy referencing, a step-by-step chart as shown in Figure 2 (Refer to Annex B) is created to sum up the concepts mentioned in the guidebook.

Annex A

CATEGORIES OF RECYCLABLES

<i>Recyclables</i>	<i>Examples</i>
1. Paper products	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.
2. Metal products	Cans or containers made of metal such as soft drink cans, beer cans, milk powder tins and food cans.
3. Plastic products	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.
4. Glass products	Jars, wine bottles and beer bottles but excluding light bulbs, window glass, porcelain, ceramic and fish tanks.”.

Figure 1: Categories of Recyclables as specified in First Schedule of the Environment Public Health (General Waste Collection) Regulation

Annex B

Figure 2: Step-by-Step Guide for MCs/MAs On Introduction of Structured Waste Recycling Programme in condominium/private apartments

