

Cheat Sheet

Reducing Waste and Managing the Problem

Definition:

Waste can be defined simply as the 'unwanted materials that we throw away' as they are worthless, useless or in excess of. 'Farms, factories and households produce waste. Waste products can be solids, liquids or gases'.

Source: Helen Whitaker (2011, page 5)



Individuals

1. Buy and throw attitude



2. Overbuying/buying more than what is required



3. Poor planning for supplies

EXPIRY DATE:
01/08/2015

Farms and Factories

1. Rejected products due to poor quality



2. Harvesting of crops



THE PROBLEM

The amount of waste thrown away by people around the world is growing at an alarming rate. According to *World Bank*, the amount of waste produced by the global urban population will be tripled by the year 2100. Managing waste is both challenging and costly as it involves collecting, transporting, recycling, disposing and monitoring its impact on the environment.

Year 2010



Amount:
3.5 million tonnes per day
Managing Costs:
\$205 billion a year

Year 2025



Amount:
6 million tonnes per day
Managing Costs:
\$375 billion a year

Landfilling and incineration are two disposal methods used by most local government agencies in dealing with waste management efforts. However, the costs of using these high tech/high energy facilities are increasing. In the long run, there are negative environmental impacts that will affect the habitat, wildlife and biodiversity surrounding these places

Source: The World Bank website. "Global waste on pace to triple by 2100"

According to the **National Environment Agency** website, Singapore's output of solid waste has increased significantly over the years: from 1,260 tonnes per day in 1970, to a high of 8,338 tonnes per day in 2014.

In Singapore, the amount of food waste output thrown away is about 796, 000 tonnes in 2014, a steep 13.2 per cent rise from the 703, 200 tonnes dumped in 2012.

Source: Sim, Walter. (2014, March 19). "More food going to waste". The Straits Times. Page B1.



"Singapore's landfill will run out of space between 2035 and 2045, if the nation continues to dispose of more than three million tonnes of rubbish a year"

Source: Boh, Samantha. (2015, May 18) "Is going green mere lip service?". The Straits Times. Page A19.

Type of Waste



LIQUIDS

Examples: used water, soap, fats, oil or grease (FOG)...



ORGANICS

Examples: eggshells, vegetable scraps, fruit rinds, coffee grounds...



SOLIDS

Examples: plastic bottles, wooden chairs...



HAZARDOUS

Examples: batteries, computers, light-bulbs, refrigerators...

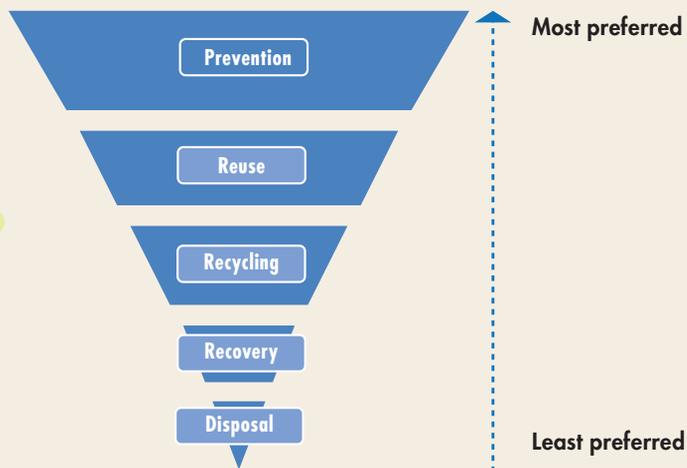
THE SOLUTIONS

Sustainable waste management efforts are focused on:

- Educating the public about the challenges and problems of waste on the environment.
- Inculcating a mind-set and behaviour change towards material items and usage.
- Reducing the environmental impact of waste as much as possible.

The **United Nation Environment Programme's (UNEP)** waste management hierarchy shows 'disposal' as the least preferred and 'prevention' the most preferred in achieving sustainable waste management.

Waste Management Hierarchy by UNEP



FOOD FOR THOUGHT

- Is recycling the most cost-effective measure to managing waste?
- What is the real cost of recycling waste?
- What are the pros and cons of recycling efforts?

COMPOSTING

Did you know that food scraps and organic waste can be turned into fertilisers? Through the process of composting, food leftovers, when combined with moisture, oxygen and microbes in soils, will decompose into nutrient-rich compost that can be used for gardening.

EDUCATION AND AWARENESS

Through campaigns and programmes at various platforms, the relevant public and private agencies have been working relentlessly to increase the awareness levels of both the consumers and manufacturers of waste management issues, problems and challenges. The main aim is for all parties to act responsibly and contribute towards better waste management. The “buy and throw” mentality could be better managed and perhaps changed through constant reminders to:

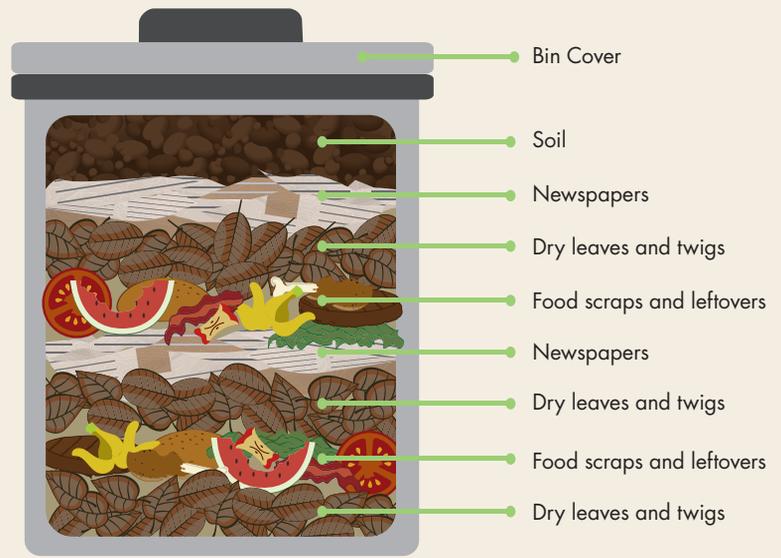
- REDUCE**

Create less waste
(e.g. by packaging groceries in recyclable shopping bags)



- REUSE**

Use items again
(e.g. by refilling water bottles and sharing unwanted goods with others)



Singapore



As at 2015, it is mandatory for big hotels and malls to submit waste-reduction plans. There are pilot projects to convert food waste into compost or water initiated at two hawker centres.

RECYCLING

Used plastic cups can be recycled into new plastic rulers. Used paper can be turned into new paper. Water bottles can be reused as pots for plants. These are examples of how items can be recycled into reusable and sometimes totally new items and materials.



China

As the world’s leader for recycling of scraps and trash from America, China’s Queen of Trash, Zhang Yin, has the biggest paper recycling plant in the world, to date.

United States of America

With the introduction of the Mandatory Recycling and Composting Ordinance in the city of San Francisco, in 2009, residents have been provided with three types of bins:



REGULATIONS

Regulations are laws imposed on members of the public who litter or do not manage their waste according to safety guidelines. For such offences, financial penalties are imposed on the offenders so as to deter them from committing the same offences in the future.

In April 2013, the fines imposed for littering offences under the Singapore law are as follows:

1st offender \$2,000
2nd offender \$4,000
3rd offender \$10,000



Rwanda

Non-biodegradable polythene bags (plastic bags) are illegal in Rwanda. This was made possible with the implementation of a ground-breaking legislation that banned the use of plastic bags since 2008.

South Korea

"You waste, you pay"

In South Korea, Volume-based Waste Fee System was implemented in 1995 to households and small commercial sectors.



INFORMATION LITERACY

Type of Information Sources

Type of Sources	Brief explanation and search keywords
 <p>Blue Print / Paper</p>	Detailed plan or programme of action initiated by an authoritative agency
 <p>White Paper</p>	A government report on any subject but less extensive than a blue print/paper
 <p>News Updates and Reports</p>	Official reporting or gazette on issues, policies, regulations, etc.
 <p>Regulation</p>	An official rule or law that says how something should be done and abided by
 <p>Official Websites</p>	Updates, especially on policies and statements by both public and private agencies and organisations



Waste Management

Specific research topic or theme.

White Paper

Specific resource type. You may replace this with other resource types such as blue print, news, etc.

Disclaimer: The information published is accurate at the time of production.

References:

Bellamy, Rufus. (2009). Waste and pollution. London: Franklin Watts.

Boh, Samantha. (2015, May 18). Is going green mere lip service?. The Straits Times. Page A19.

Edward, Humes. (2012, April 18). Grappling with a garbage glut. The Wall Street Journal. Retrieved on 12 August 2015 from: <http://www.wsj.com/articles/SB10001424052702304444604577337702024537204>

Global waste on pace to triple by 2100. The World Bank. Retrieved on 5 July 2015 from <http://www.worldbank.org/en/news/feature/2013/10/30/global-waste-on-pace-to-triple>

Information Note: South Korea's waste management policies. Legislative Council Secretariat (INC04/12-13). Retrieved on 5 July 2015 from <http://www.legco.gov.hk/yr12-13/english/sec/library/1213inc04-e.pdf>

National Environment Agency. Waste management: Individuals. Retrieved on 5 July 2015 from <http://www.nea.gov.sg/energy-waste/waste-management/overview#Individuals>

Sim, Walter. (2014, March 19). "More food going to waste". The Straits Times. Page B1

The National Geographic. Cash for trash. The Big Picture series by Kal Penn. Retrieved on 12 August 2015 from: <http://channel.nationalgeographic.com/the-big-picture-with-kal-penn/videos/building-a-garbage-house/>

The volume based waste fee system of Korea. Retrieved on 1 July 2015 from <http://epi.yale.edu/indicators-in-practice/volume-based-waste-fee-system-korea>

United Nation Environment Programme (Oct 2013). Municipal solid waste: Is it garbage or gold? Retrieved on 5 July 2015 from http://www.unep.org/pdf/UNEP_GEAS_oct_2013.pdf

University of Illinois Extension. Composting for the homeowners. Retrieved on 5 July 2015 from <http://web.extension.illinois.edu/homecompost/why.cfm>

Waste management whitepaper: a four step guide to zero waste. Retrieved on 5 July 2015 from http://www.ecova.com/media/216958/four_step_guide_to_zero_waste_whitepaper.pdf

Whittaker, Helen (2011). Waste. South Yarra, Inv.: MacMillan Education Australia.