Sustainable Communities SA Inc.

PLASTIC

Why worry about plastic?

- **Long life**

Plastic takes a substantial period of time to break down. Scientists estimate that it takes between 20 and 1000 years to decompose(1).

- **Reliance on oil**

Plastic is generally made from oil, the supply of which is diminishing. There are many predictions for when 'peak oil' will occur, after which there will be a steep decline in global supply. The term Peak Oil refers to the maximum rate of the production of oil in any area under consideration, recognising that it is a finite natural resource, subject to depletion (2).

- **Litter**

A lot of plastic items are manufactured as single use or disposable items. For example in Australia, over 6 billion plastic bags are used every year. Most of these currently end up in landfill or are spread through the environment. (3). The middle of the Pacific Ocean is a place where very few people venture and yet it contains a floating garbage patch **twice the size of Britain.** In this area the water is filled with six times as much plastic as plankton (4).

- **Death of wildlife**

Tens of thousands of whales, birds, seals and turtles are killed every year from plastic litter in the marine environment as they often mistake plastic for food such as jellyfish. Once ingested, plastic cannot be digested or passed by an animal so it stays in the gut. Plastic like this can prevent food digestion and can lead to a very slow and painful death. Once an animal dies and decays, the plastic is then freed back into the marine environment to carry on killing other wildlife (5). In addition as plastics break down they are more easily ingested by animals. Animals can also get tangled in plastics causing horrible injuries or even strangulation.

- **Types of plastics**

Greenpeace has produced a ranking of plastics based on their toxic characteristics from most harmful to least harmful (6). It provides a qualitative ranking based on environmental and health problems (certain plastics can leach chemicals that are harmful to humans), addressing the production, additives, product emissions during use, disposal and recycling. It does not include raw materials and energy inputs and therefore does not address all criteria of a life cycle analysis. Keep in mind, no petroleum-based plastic is sustainable as we move to a materials economy based on appropriateness, renewability and efficiency. Note the number in the triangle that can be found on the bottom of most plastics does not indicate that they are recycled but is just an identifier of the type of plastic.

Types of plastic include:

1. Polyvinyl chloride (PVC) and other halogenated plastics

2. Polyurethane (PU), Polystyrene (PS), Acrylonitrile-butadiene-styrene (ABS), Polycarbonate (PC)
3. Polyethylene-terephthalate (PET)
4. Polyolefins (PE,PP,etc.)
5. Bio-based plastics

From a health perspective it is advisable to avoide PVC (code 3), polystyrene (code 6) and Polycarbonate (code 7) particularly for food storage items. (7)

Strategies to reduce your impact on the environment

(in order of effectiveness)

- *Refuse* - Don't buy things you don't need, avoid packaging, take your own bags.
- *Reduce* - Use just a little less of everything.
- *Re-use* - Avoid disposables, use things for as long as you can.
  - Be creative - find uses for things, rather than throw them away.
  - Give away unwanted useable items.
- *Repair* - Mend things, or pay a skilled repairer, if at all possible.

- *Recycle* to:
  - minimise waste
  - reduce the demand on raw materials
  - reduce the amount of energy required in manufacturing.

It is necessary to realise that whether or not it is theoretically possible to recycle an item, its acceptance will depend on the commercial decisions of waste management companies depending on market prices. Also recycling is an energy intensive process that often results in the "downcycling" of the material where inferior products are generated from source material. Also recycling is dependent on having demand for the recycled product.

11 ways to reduce the need for plastic:

1. Purchase loose fruits and vegetables where practical.
2. Ask for bread in a cloth or paper bag from your baker…or make your own.
3. Keep perishable food (including lunches) in sealed reusable containers.
4. Purchase milk in bottles and squeeze your own juice. Milk and juice cartons, or tetrapaks as they are sometimes called, are made of several layers of paper, aluminium and plastic and so are very difficult to recyle (8)
5. Buy your newspaper from a news stand instead of having it delivered. Better still, read it on-line.
6. Buy in bulk where possible to help reduce packaging and save money.
7. Health food shops, organic shops and food co-ops carry many loose items (such as cereals, pasta, rice and pulses). You may also be able to refill your honey or cleaning products containers.
8. Take your own bags when you go shopping.
9. Reheat food in the microwave using a lid instead of cling film.
10. If you must use paper plates and cups next time you entertain, compost them when you're done! Of course it is best to use non-disposable plates and cups and wash and reuse them so as to reduce the use of raw materials and energy. Compostable paper cups, plates and cutlery can now be purchased from companies such as BioPak or Eco Party Box.
11. Make your own bags from discarded clothing including old jeans.

Household plastic recycling

Almost all plastic can be recycled. Many products carry code numbers 1 to 7 and code letters within the 'recycling triangle sign' indicating different types of plastic that require different recycling processes if they are to be recycled. However it should be noted that not all plastics

are recycled in Australia and that some plastics produce a number of toxic by-products in the recycling process. When Polyvinylchloride (PVC), code 3, reaches the end of its useful life, it can be either landfilled, where it leaches toxic additives, or incinerated emitting dioxin and heavy metals. Dioxin is one of the most toxic substances known, and has been found to cause cancer and reproductive disorders.

There are 3 Material Recovery Facilities (MRFs) in Adelaide (Wingfield, Elizabeth and North Plympton) which are all owned and operated by Visy. Whether and where particular items are disposed of is a commercial decision made by waste management companies depending on market prices.

If a plastic item keeps its shape it is called 'hard' and should be put in the yellow-topped recycling bin. Any hard plastic products or containers bought for domestic use can be recycled. These include milk bottles, ice cream containers, detergent bottles, take-away containers, party plates and cups.

Lids can be recycled as follows:
Plastic lids - e.g. tops of soft drink bottles, Liquid Paper Board containers, bottles and jars, aerosol cans, food containers - collect in a plastic milk bottle, put lid on and place in yellow bin. You can also make a small slit down the side of a plastic milk bottle and place lids from butter, margarine or icecream containers inside for recycling.
Metal lids - e.g. crown seals, beer bottle tops, tops of some food jars and bottles - collect in a metal can, crush can to seal and place in yellow bin.

Plastic bags
'Soft' plastic (e.g. bags and packets) should be put in the bins at supermarkets, NOT placed in yellow kerbside recycling bins. These items foul up machinery used in the sorting process and must be handled separately. Any bags placed in the yellow-topped bin will be sent to landfill. Enclosed bags (of bags) are assumed to contain rubbish, will not be inspected and are disposed of.

Some supermarkets currently provide bins for the collection of soft plastic, e.g. Coles have an excellent project with Replas, a Victorian company who take the soft plastic and make it into things like playground equipment, walkways and park furniture.

'Soft plastic' encompasses:
- ✓ all types of plastic bags (e.g. checkout bags, bread bags, boutique bags)
- ✓ cling film (from newspapers, produce, etc.)
- ✓ packaging (e.g. cereal packets, biscuit packets, bubble wrap)

Soft plastic items **not** acceptable for recycling include:
- × degradable bags
- × open-weave bags (e.g. orange bags)
- × food contaminated plastic (i.e. it should be clean enough to handle and to avoid producing odour or attracting pests)

These items must be put in the rubbish bin and go to landfill.

Polystyrene
Polystyrene must NOT be put into yellow recycling bins - it is not recyclable through Council collections. However, polystyrene cups, packing and trays (clean and free of food waste and other contaminants) can be recycled if you take it to Bill Caire's Cases, Unit 5, 15 Burma Rd, Pooraka, ph 0408 819 579 (open til 12 Noon weekdays); or Coolfoam, 3/12 Kingstag Cres, Elizabeth West, ph. 8287 3666.

Plastic bag alternatives

- *Degradable plastic* bags are made from conventional plastic with an additive which helps to break down the bags into smaller and smaller pieces. While degradable bags alleviate part of the existing problem, complete breakdown of the synthetic is still very slow.
- *Compostable plastic* bags are made from renewable resources such as corn starch. These break down quickly and completely in commercial composting facilities. Compostable bags are now provided by most councils for collection of all food scraps and placement in GREEN bins.
- *Paper* bags are both recyclable and biodegradable yet they have limited potential for reuse. The raw material for manufacturing derives from trees and the process also creates air and water pollution.
- *Calico* bags are durable and washable but the growing of cotton requires the extensive use of water, fertilizers and pesticides. Calico bags are currently not able to be recycled.
- *'Green bags'* require less energy, less water and less materials and create less CO_2 compared with cloth, paper and light-weight plastic. They are durable and washable however, they are made from a polypropylene material which may never break down in landfill but can potentially be recycled into bins, crates or bags. They may be put into the supermarket bins which collect soft plastic.

Ecolateral (1/443 Magill Rd, St Morris) also has a range of reusable alternatives including *hemp, jute, nylon* and *polyester*.

Bin liners

With Councils now trying to reduce the amount of green and food waste going to landfill, they offer small kitchen compost bins along with compostable bin liners very cheaply. Food Waste collected this way can go straight in to our green bins, along with green waste from the garden. But note these must be compostable bags, not biodegradable.

References

1. ABC *"No Bag, thanks!"* - http://www.abc.net.au/science/features/bags/default.htm
2. ASPO International (Association for the study of peak oil and gas) http://www.aspo-australia.org.au/
3. SITA - http://www.sita.com.au/community-education/site-tours-education/recycling-tips/plastic-bags/
4. Sydney Morning Herald 2007. *The Plastic Killing Fields.* www.smh.com.au/news/environment/the-plastic-killing-fields/2007/12/28/1198778702627.html?page=fullpage
5. Planet Ark Plastic Bag Reduction - http://plasticbags.planetark.org/about/wildlife.cfm
6. Greenpeace. http://www.biznGo.org/sustainable-materials/plastics-scorecard
7. Rick Smith and Bruce Laurie. 2011. Slow Death by Rubber Duck. http://www.amazon.com/Slow-Death-Rubber-Duck-Everyday/dp/1582437025
8. Tree Hugger. http://www.treehugger.com/corporate-responsibility/in-what-world-can-you-call-tetra-pak-green.html

ADDITIONAL LINKS

Sustainable Communities SA brochure "No such thing as rubbish"
https://sustainablecommunitiessa.files.wordpress.com/2009/04/a5-version-of-recycling-brochure-update-june-2015-final.pdf

Zero Waste SA plastic bag fact sheet
http://www.zerowaste.sa.gov.au/upload/facts-sheets/plastic_bags_11.pdf

Information on plastic bag phase out http://www.zerowaste.sa.gov.au/resource-centre/publications/plastic-bag-phase-out