



## **Waste Management Guidelines**

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**Prepared by:**

Jonathan and Sue Cook

**Adopted by:**

Community Association DP 270736

**Date:**

## Philosophy

The three fundamental ethics of the Illabunda community are caring for the earth, caring for people and being equitable and wise with the earth's limited resources [1]. To support these ethics a philosophy of minimisation of waste has been adopted for the Illabunda village. The Illabunda Community Management Statement states:

### 18 Waste and Recycling

#### 18.1 Philosophy

The Community Association shall adopt a zero landfill waste target and promote the minimisation of waste by recycling, re-using and reducing consumption of non-recyclable materials wherever possible. Surplus organic materials shall be composted or otherwise reused within the Community Scheme wherever possible.

### Why reduce waste?

Three reasons:

#### **1) Save money**

Waste disposal is getting very expensive. Parramatta city Council charges \$496 per household per year for the normal wheelie bin service. The costs at Illabunda with our waste minimisation strategies are expected to be about \$150 per household per year.

#### **2) Reduce drain on the worlds limited resources**

Waste is waste and it is not a fair thing to throw out material resources which our children and grand children will need in the future.

#### **3) Reduce carbon emissions**

Waste generates excessive carbon emissions. Particularly food wastes which rot in landfill and generate methane which is an extremely aggressive greenhouse gas. The average Australia produces 1 ton of CO<sub>2</sub> equivalent each year from wasted food [1]. At Illabunda we intend to reduce that 1 ton per person to zero!

Furthermore, nature doesn't produce "waste". Everything discarded by any plant or animal in nature is used by another further along the chain. Eventually all discarded materials become fertile and rich soil which then feeds the plants and the cycle begins again. It is a closed system.

We can emulate nature by valuing and making use of all the resources that are available to us with nothing going to waste<sup>1</sup>.

To achieve these goals it is proposed that over time as residents move in to Illabunda systems will be set-up to process waste as follows:

#### **For organic materials (food scraps and vegetation):**

- Worm farm(s);
- Chooks;
- Compost systems (Bokashi buckets, Aerobins, Doggie poo composter bin, bulk hot composting)
- Mulching;

#### **For inorganic materials:**

- Co-mingled recyclables collection service;

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<sup>1</sup> Permaculture Design Principle 6 - Produce no waste[2]

- Specialised recyclables collection services (such as batteries, E-waste, flouro light bulbs);
- General waste collection service.

The first step is to reduce the amount of "waste" material to be dealt with by applying the five "R's" of reducing waste:

### **1. Refuse**

Don't buy or obtain anything that you don't really need, including finding products without lots of wasteful packaging;

### **2. Reduce**

Consume less stuff;

### **3. Reuse**

Reuse existing materials, packaging, furniture, appliances etc. Repair rather than throw-out and replace products;

### **4. Recycle**

Recycle materials first on the site and then through a recycling service;

### **5. Recover**

Recover energy from materials. Mostly applicable to commercial landfill gas generators etc but could also apply in innovative ways at Illabunda.

Once we have reduced the amount of discarded stuff that we produce we can then proceed to process it in the most ecologically sensitive manner in accordance with Illabunda's ethics.

Appendix A below provides guideline as to how each material which is left over or no longer required may be processed to reduce costs, return as much benefit back to the Illabunda community as possible and cause the least harm on the environment.

## **Appendices**

**Appendix A** - Guide to re-purposing of discarded products and materials at Illabunda

**Appendix B** - Plastic recycling codes

**Appendix C** - Preparations for recycling

**Appendix D** - Outline of Permaculture

## **References**

1. One Million Women Website  
<http://www.1millionwomen.com.au/News.cfm?id=246&ruuid=F90C8687-FDCE-4B16-48A1B7DDD1C2C7C9>
2. Wikipedia - Permaculture Principles
3. Wikipedia - Plastic Recycling Codes



**Appendix A**  
**Guide to re-purposing of discarded products and materials at Illabunda**

Item	Item	Item	Material		Preparation	Destination							
			Plastics Code	Description		Worm farm	Compost	Chooks	Co-mingled recycle bin	Paper recycle bin	General waste bin	Other	
<b>Packaging</b>	Plastic bags	Bread bags	4	LDPE							X		
		Supermarket bag	2	HDPE	Rinse if needed								Woolies recycle bin
		FnV bags	2	HDPE	Rinse of needed								Woolies recycle bin
		Dept store bag	4	LDPE								X	
		Shrink wrap	4	LDP								X	
		Cling wrap	4	LDPE								X	
	Plastic containers	Icecream tub	5	PP						X			
		Cake containers	several							X			
			Drink bottles	1	PET	Remove lids, rinse				X			
			Sauce bottles	4	LDPE	Remove lids, rinse				X			
		Yoghurt containers	6	PS					X				
	Green bags (when finished with)		5	PP							X	Use as long as possible	
	Polystyrene foam		6	PS							X	Possible collection service	
	Paper bags	Non-waxed bags					X			x			
		Waxed paper					X						
		Fish and chips wrapping					X						
	Cardboard									X			
	Pizza boxes				Clean of food scraps					X			
	Metal cans								X				
	Glass jars and				rinse				X				

Item	Item	Item	Material		Preparation	Destination							
			Plastics Code	Description		Worm farm	Compost	Chooks	Co-mingled recycle bin	Paper recycle bin	General waste bin	Other	
	bottles												
<b>Food scraps</b>	Pasta and rice						x	X					
	Meat and fat				Cook lightly		x	X					
	Bones				Cook lightly		X	X					
	Fruit and veg	All except onions and citrus				X	X	X					
		Onions, citrus					X						
	Bread						X						
	Coffee and tea	Grinds, leaves				X	X						
		Bags				X	X						
<b>Paper and magazines</b>	Newspaper						X				X	Use for weed mat	
	Magazines	Glossy & non-glossy									X		
	Paper towels						X						
<b>Hygiene</b>	Tissues						X						
	Pads etc										X		
	Nappies	Disposable									X		
<b>Green waste</b>	Leaves											Mulch heap	
	Branches											Mulch heap	
<b>Appliances</b>	Whitegoods											Waste Transfer Stn	
	Small electrical	Computers										Waste Transfer Stn	
		monitors										"	
		peripherals										"	
		Tools										"	
		TV										"	
		DVD machine etc										"	
	<b>Video tapes</b>											Hills SC	
	<b>Batteries</b>											Batteries box, Hills SC	

Item	Item	Item	Material		Preparation	Destination						
			Plastics Code	Description		Worm farm	Compost	Chooks	Co-mingled recycle bin	Paper recycle bin	General waste bin	Other
	Printer cartridges											Hills SC/Aust Post
Chemicals	Oil											Waste TF Stn. Hills SC chemical cleanout
	Other chemicals											"
	Paint	in tins										"
		Water based brush wash-out										To Paint wash-down area
		Oil-based brush wash-out										Store and Chem cleanout
Other	Scrap metal	Steel										Waste TF stn
		Non-ferrous										Waste TF stn
	Dog poo				Bio-degradable plastic bag							Doggie compost bin
	Kitty Litter				"							"
	Glassware										X	
	Light bulbs	Flouros										Flouro box
Furniture	Mattresses											Mattress collections \$
	Beds, tables chairs etc											?

**Appendix B**  
**Plastics recycling codes [3]**

Plastic Identification Code	Type of plastic polymer	Properties	Common Packaging Applications
	Polyethylene terephthalate  (PET, PETE)	Clarity, strength, toughness, barrier to gas and moisture.	Soft drink, water and salad dressing bottles; peanut butter and jam jars
	High-density polyethylene  (HDPE)	Stiffness, strength, toughness, resistance to moisture, permeability to gas.	Water pipes, hula hoop rings, buckets, milk, juice and water bottles; grocery bags, some shampoo / toiletry bottles
	Polyvinyl chloride  (PVC)	Versatility, ease of blending, strength, toughness.	Blister packaging for non-food items; cling films for non-food use. Not used for food packaging as the plasticisers needed to make natively rigid PVC flexible are usually toxic. Non-packaging uses are electrical cable insulation; rigid piping; vinyl records.
	Low-density polyethylene  (LDPE)	Ease of processing, strength, toughness, flexibility, ease of sealing, barrier to moisture.	Frozen food bags; squeezable bottles, e.g. honey, mustard; cling films; flexible container lids.
	Polypropylene  (PP)	Strength, toughness, resistance to heat, chemicals, grease and oil, versatile, barrier to moisture.	Reusable microwaveable ware; kitchenware; yogurt containers; margarine tubs; microwaveable disposable take-away containers; disposable cups; plates.
	Polystyrene  (PS)	Versatility, clarity, easily formed	Egg cartons; packing peanuts; disposable cups, plates, trays and cutlery; disposable take-away containers; some yogurt containers  Styrofoam is also PS, mixed with air
	Other (often polycarbonate or ABS)	Dependent on polymers or combination of polymers	Beverage bottles; baby milk bottles. Non-packaging uses for polycarbonate: compact discs; "unbreakable" glazing; electronic apparatus housings; lenses including sunglasses, prescription glasses, automotive headlamps, riot shields, instrument panels;

**Appendix C**  
**Preparation for recycling**

To be completed



**Permaculture** is a branch of ecological design, ecological engineering, and environmental design which develops sustainable architecture and self-maintained agricultural systems modelled from natural ecosystems.

The core tenets of permaculture are:

- **Take care of the earth:** Provision for all life systems to continue and multiply. This is the first principle, because without a healthy earth, humans cannot flourish.
- **Take care of the people:** Provision for people to access those resources necessary for their existence.
- **Share the surplus:** Healthy natural systems use outputs from each element to nourish others. We humans can do the same. By governing our own needs, we can set resources aside to further the above principles.

Permaculture design emphasizes patterns of landscape, function, and species assemblies. It asks the question, "Where does this element go? How can it be placed for the maximum benefit of the system?" To answer this question, the central concept of permaculture is maximizing useful connections between components and synergy of the final design. The focus of permaculture, therefore, is not on each separate element, but rather on the relationships created among elements by the way they are placed together; the whole becoming greater than the sum of its parts. Permaculture design therefore seeks to minimize waste, human labour, and energy input by building systems with maximal benefits between design elements to achieve a high level of synergy. Permaculture designs evolve over time by taking into account these relationships and elements and can become extremely complex systems that produce a high density of food and materials with minimal input.

The design principles which are the conceptual foundation of permaculture were derived from the science of systems ecology and study of pre-industrial examples of sustainable land use. Permaculture draws from several disciplines including organic farming, agroforestry, integrated farming, sustainable development, and applied ecology. Permaculture has been applied most commonly to the design of housing and landscaping, integrating techniques such as agroforestry, natural building, and rainwater harvesting within the context of permaculture design principles and theory

(1) The 12 permaculture design principles

Permaculturists generally regard the following as its 12 design principles:

1. *Observe and interact:* By taking time to engage with nature we can design solutions that suit our particular situation.
2. *Catch and store energy:* By developing systems that collect resources at peak abundance, we can use them in times of need.
3. *Obtain a yield:* Ensure that you are getting truly useful rewards as part of the work that you are doing.
4. *Apply self-regulation and accept feedback:* We need to discourage inappropriate activity to ensure that systems can continue to function well.
5. *Use and value renewable resources and services:* Make the best use of nature's abundance to reduce our consumptive behavior and dependence on non-renewable resources.
6. *Produce no waste:* By valuing and making use of all the resources that are available to us, nothing goes to waste.

7. *Design from patterns to details:* By stepping back, we can observe patterns in nature and society. These can form the backbone of our designs, with the details filled in as we go.
8. *Integrate rather than segregate:* By putting the right things in the right place, relationships develop between those things and they work together to support each other.
9. *Use small and slow solutions:* Small and slow systems are easier to maintain than big ones, making better use of local resources and producing more sustainable outcomes.
10. *Use and value diversity:* Diversity reduces vulnerability to a variety of threats and takes advantage of the unique nature of the environment in which it resides.
11. *Use edges and value the marginal:* The interface between things is where the most interesting events take place. These are often the most valuable, diverse and productive elements in the system.
12. *Creatively use and respond to change:* We can have a positive impact on inevitable change by carefully observing, and then intervening at the right time.