



WASTE

Waste is not something we normally consider a form of pollution because it is put in the bin and properly disposed. But minimising waste is more than making less rubbish it is also about making better use of our resources and reducing our demand for raw materials, energy and water, without compromising productivity. As demand for resources grows so does their cost, which means wasting resources is expensive.

Physical waste is anything unused, unvalued, unwanted and thrown away, and it costs both the environment and you in the wallet via disposal charges and wasted resources. Many things that go into bins or down drains in workplaces have the potential to be reused or recycled; or through better processes and practises not created in the first place.

Some of the benefits of reducing your waste are:

- Saving on the cost of raw materials and waste disposal costs
- A cleaner, healthier environment to live and work in
- Contributing to better management of resources
- Improved company image to local and export markets.

Rethinking waste – what it really is

When we think of waste we think of the rubbish that goes in the bin; it's forgotten about and taken away usually by someone else – out of sight out of mind. But what goes in the bin is only the evidence of many other wasted resources. Wasted resources could be all the extra energy, water and materials that go into a manufacturing process only for some of the end product becoming off-cuts or scraps. So not only do the off-cuts become waste but all the energy and resources that went into making and transporting them have been wasted because they could have been better used.

Know your waste

Waste minimisation is not just about what happens on your site; it involves having an understanding of what comes in and what goes out. Waste in your business could be packaging, office paper, food waste, disposable clothing and equipment, off cuts, leftover materials, damaged products or quality control rejects. To better manage your waste, you first need to know a little about it. Try our waste audit to see what your waste is made of and how much it is costing you to get rid of it. Our waste audit can be found at the end of this module with the questions. For other waste auditing information or to get suggestions on how to reduce, reuse and recycle your waste, go to www.target sustainability.co.nz and see their Target Waste toolkit.



Minimising your waste

Many materials in your waste could be kept out of the landfill by adjusting the way you operate; even a small change can make a big difference. If minimising your waste seems like a big task, or time is short, try breaking it down. Pick somewhere to start and work your way through.

- **Beginning** – What is coming onto your site that becomes, or causes, waste?
- **Middle** – How do your practices, processes, procedures and methods contribute to the waste?
- **End** – What happens to your wastes, and what happens to your products. Can your customers recycle or re-use your products?

Some ideas in this section will be easy to try straight away, while others maybe long-term goals to aim for. A good way to minimise waste is to use the waste management hierarchy or 5 Rs; **REDUCE, REUSE, RECYCLE, RECOVER AND RESIDUAL MANAGEMENT**. Reduce being the best and first option you should try. If reduction is not practicle, then work down the hierarchy to find the next best solution.

REDUCE

Prevention is better than cure – the best option is to stop a waste being created in the first place.

Aim to reduce the total amount of waste and/or its concentration or toxicity. Look to rationalise your stock and supplies. Storing fewer materials on site (particular hazardous substances) reduces your environmental liability, compliance costs and helps reduce waste streams. By purchasing fewer materials you are eliminating or reducing waste. Having fewer materials onsite may also benefit your business by increasing efficiencies, reducing storage, and costs. You can also reduce waste your products create for your customers by looking at their packaging, lifespan and disposal.

Packaging

Most packaging has a relatively short lifespan compared to the goods it contains, and can be a major contributor to waste. You could reduce packaging waste by requesting suppliers don't over package, reusing containers or choosing suppliers who use reusable packing and/or who don't use excessive or unrecyclable packaging. You can also recycle most types of packaging even polystyrene, plastic wrap and bubble wrap.

If you manufacture goods make sure the packaging is appropriate for the product; too much packaging is a cost to you and a nuisance for your customers. Think about the packaging materials you use, and whether they are easily recycled by your customers or recoverable for reuse.

Immediate changes are often not possible in this area, but when you design new packaging or products in the future you should take the environmental impacts of your packaging into account. Less packaging results in less waste and fewer costs for you and your customers. Remember the use of recycled materials and recyclable packaging can be a good marketing point.

Product Stewardship

Product stewardship involves considering the environmental impacts of a product over its lifetime, such as how long it lasts and its recyclability. As part of product stewardship a number of companies and industry groups run take-back schemes for used or unwanted products. For more information on current product stewardship schemes or becoming involved, see the Ministry for the Environment website www.mfe.govt.nz.

REUSE

Think about whether you or someone else could get another use out of materials you are currently throwing away. Materials could be donated to a school or community group, sold or given to another firm or the public. Your local Waste Exchange offers free advice to find someone interested in taking your waste materials. There are currently nine Waste Exchanges throughout Canterbury their contact details can be found on the Useful Info fact sheet at the back of this guide or ECan's Website.

Tips & Ideas:

- Solvents can be reused, just allow settling to remove particulates then reuse
- Printer and photocopier cartridges can be refilled
- Timber, paints, containers and working computers can be reused by community groups, schools and kindergartens
- Building and construction waste can be reused by schools, community groups and DIYer's.

RECYCLE

Many materials can be reprocessed into new products; you could recycle materials back into your production line as a raw material, sell it, or send it to other firms for recycling. Along with the usual glass, metals, plastics, and paper many other materials can be recycled for instance: polystyrene, electrical goods, vehicle batteries, fabric, furniture and textiles, oil and solvents, and construction and demolition waste. Organic and green wastes can also be composted, either through a commercial composter or onsite with compost bins for food waste (subject to volume). For more ideas and information try the ECan website and the Christchurch City Council's online Recycling Directory (a useful resource even for those outside the Christchurch area) it can be found at www.target sustainability.co.nz.

As well as recycling waste products you could buy recycled products or materials. This creates markets for those materials and encourages other business to recycle.

For example:

- Paper used in painting, or panel repairs can be recycled rather than going in the skip.

Separate on site

Separating reusable and recyclable materials from other waste on site (and preferably at their source) makes them handier to reuse and easier to recycle. If mixed with general waste, useful products such as paper or steel become contaminated and harder to recycle. If you separate such products out they are cheaper to dispose of, and may even be able to be sold.

Tips & Ideas:

Use separate labelled bins or cages for different waste materials, such as paper and cardboard, metals, plastics, glass, organic or green waste (choose to suit your business).

Store partially used paints, glues, sealants, oils or greases in one place for use on other projects and save by not doubling up.

Place off cuts, damaged and leftover materials in one place so they can be easily found and used later.

Place recycle paper trays next to printers, photocopiers and desks to encourage recycling – the lids of paper boxes are good for this. Look to print double sided or only print when it is essential – this will save you money.

RECOVER

By keeping waste products separated and uncontaminated you may find other companies may treat your 'waste' as a resource. In some cases your 'waste streams' may become another source of revenue. Energy recovery from waste is very limited in New Zealand. However, waste oil that can no longer be re-refined, can be burnt in special furnaces.

Use the Christchurch City Council's online Recycling Directory at www.target sustainability.co.nz or your local Waste Exchange to locate other organisations that may be interested in reusing or recovering your wastes.

RESIDUAL MANAGEMENT

If you do need to throw it away, make sure you know where it goes and how it will be handled. It is important to know that you are legally still the owner of your waste even after it has been removed from your site. Some wastes and especially hazardous wastes (e.g. asbestos) need special treatment and disposal, ask for proof of proper disposal – your paying extra for it after all.

Furthermore you are liable for what your waste disposal contractor does with waste from your site. Some ideas for checking proper disposal are:

- Ask what happens to your waste, how it is treated or disposed of
- Ask for a copy of the manifest
- Request a receipt or certificate of proper treatment or disposal
- Track your waste – see the WasteTRACK system discussed at the end of the next section.

Hazardous Substances & Hazardous Waste

It is important to manage hazardous wastes and hazardous substances in a responsible way, to prevent damage to the environment and harm to people. Good management of hazardous substances involves safe storage, use, transportation and disposal. Most controls on hazardous substances come under the Hazardous Substances and New Organisms Act (1996) (HSNO), but they are also covered by sections of the Resource Management Act (1991) (RMA).

Hazardous Substances

A hazardous substance is a substance that does or could have a negative affect on people or the environment. Hazardous substances may be flammable, highly reactive and/or toxic; they could be a solid, liquid or gas; a pure substance, an ingredient or contaminant; or anything which may react with air or water to produce a hazardous substance under normal conditions.

All hazardous substances must be managed according to the HSNO regulations, and just because a substance was not a dangerous good under the old dangerous goods regulations does not mean it is exempt from HSNO. Common requirements include secondary containment such as bunds or double skinned tanks; incompatible substances stored separately; and emergency procedures. Check with the Environmental Risk Management Authority (ERMA) about the requirements for your substances. Their contact details can be found on the Useful Contacts fact sheet.

Remember it can still be a hazardous substance if it is a waste, so treat hazardous wastes the same. For example, you should use the same precautions for waste oil as you do for new oil.

If you use or store a hazardous substance on your site you should read the 'Storage and Handling' and 'Spills' sections to ensure they are properly managed. You may also have obligations under HSNO; to find out more about the requirements for the substances you have on site contact your chemical supplier; or ERMA on their website www.erma.govt.nz or their hazardous substances compliance hotline 0800 376 234.

Hazardous Waste

Hazardous waste is any waste containing or contaminated with a hazardous substance or which in itself has hazardous properties or could have harmful effects on people or the environment. Common hazardous wastes include: asbestos, used oils, paints, agrichemicals, chemicals, vehicle batteries and heavy metals.

Hazardous waste should be kept separate from general waste and removed by a hazardous waste contractor; who can handle, treat, dispose, recycle or recover any useful material from it safely. Hazardous wastes must never be placed in a clean fill, farm dump or thrown out with other waste, as this could result in environmental contamination for which you would be liable. Look in the Yellow pages under HAZARDOUS WASTE for a suitable contractor. You may need different contractors for different wastes depending on what you have on site.

Some examples:

- Sludges and liquids containing metals should be disposed of via trade waste (permit required) or a liquid and hazardous waste disposal contractor
- Unwanted paint should be recycled through a paint recycling scheme such as Paintwise or Enviropaints
- Used empty paint containers should be recycled where possible. Plastic containers should be cleaned and rinsed then taken to a plastic recycler, waste exchange or reuse stores; metal containers may be taken by scrap metal dealers – but must be drained and dried first. Used rags and brushes should be sent to landfill
- Separate solvents that are reusable on your site. Non-reusable solvents should be sent to a solvent recovery company; check with them whether different solvents need to be separated

- Used oil should be kept separate from other waste liquids, such as engine coolant, and removed for reuse or refining by an appropriate contractor. For a contractor near you see your yellow pages, or <http://www2.ccc.govt.nz/targetsustainability/>
- Any materials containing or contaminated with asbestos require special handling and disposal at approved landfills. These materials are best handled by a licensed contractor with expertise in disposing of them. Check ECan's website for more details
- Contaminated soil needs to go to a licensed facility, if you are excavating contaminated soil there will be rules or regulations you need to follow - contact ECan customer services before you start work to check these.

Tracking Waste

A useful tool for tracking waste is WasteTRACK. This is a secure internet based manifest that combines facility and carrier information to track liquid and hazardous wastes from generation, through transport to treatment or disposal. WasteTRACK is operated by the Ministry for the Environment and supported by waste disposal industry groups. Contractors that are approved under the Liquid and Hazardous Waste Code of Practise use WasteTRACK as their manifest system. By choosing a disposal operator who uses the Code of Practise you can see that your waste is being appropriately and legally treated and disposed. For more information on the code of practise or WasteTRACK see their website www.wastetrack.co.nz or www.tyretrack.co.nz for used tyres.

Getting Started, Further Information and Advice

What you can do will depend on the type and size of your business, but even small business can see a big difference from a little change. Start with the simple stuff and build on that – do you have a recycling bin in your lunch room? Do you recycle unwanted office paper and envelopes or do they go in the bin? Some changes will take a bit of research or investment; plan for this in budgets and work programmes to see the long term benefits of waste minimisation. Further information, advice and ideas are available from the ECan website www.ecan.govt.nz/Our+Environment/Waste/ or the Christchurch City Council website www.targetsustainability.co.nz

IN THIS MODULE

| | Done | Date |
|------------------------------------------------|--------------------------|----------------------|
| Audit | <input type="checkbox"/> | <input type="text"/> |
| Storage | <input type="checkbox"/> | <input type="text"/> |
| Hazardous Waste | <input type="checkbox"/> | <input type="text"/> |
| Other (specify) <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Urgent action | <input type="checkbox"/> | <input type="text"/> |
| Cross check | <input type="checkbox"/> | <input type="text"/> |
| Action list | <input type="checkbox"/> | <input type="text"/> |
| Signs of success | <input type="checkbox"/> | <input type="text"/> |

WASTE AUDIT

Know the Cost \$\$\$

Have a look through your accounts and contracts and see how much waste you have removed and how much it is costing you each month. (You may find it helpful to develop your own spreadsheet with the relevant detail, or try the calculators on the Christchurch City Council website www.ccc.govt.nz/TargetSustainability/TargetWaste/)

1. Solid Waste

How often is your solid waste taken away? _____
(daily / weekly / fortnightly / monthly / yearly)

How much waste do you dispose of each **month**? _____
(drums / bins / skips / m³ / tonnes / kgs)

What is the financial cost of this to you? \$ _____ per **month**

2. Liquid Waste

How often is your liquid waste taken away? _____
(daily / weekly / fortnightly / monthly / yearly)

How much liquid waste do you dispose of each **month**? _____
(sumps / tanks / drums / bins / m³ / litres / tonnes / kgs)

What is the financial cost of this to you? \$ _____ per **month**

3. Hazardous Waste

How often is your hazardous or special waste taken away? _____
(daily / weekly / fortnightly / monthly / yearly)

How much hazardous waste do you dispose of each **month**? _____
(sumps / tanks / drums / bins / skips / m³ / litres / tonnes / kgs)

What is the financial cost of this to you? \$ _____ per **month**

Estimated total waste produced (per month) _____
(sumps / tanks / drums / bins / skips / m³ / litres / tonnes / kgs)

Total cost of waste disposal per **month**

per **year** (x12)

Other Costs e.g. replacement equipment/
materials, unsold product

Surprised? Complete these questions to see what your waste is, and how its volume or toxicity could be reduced – and therefore reducing your disposal costs.

Know What It's Made Of

Work through this part of the waste audit to see what you are throwing away.

Does your site collect or contain any liquid wastes? If so; what different liquid wastes do you have on site?

1. Have you identified materials in your waste that could be reduced, reused or recycled? What are they?

- | | |
|-------------------------------------------------------|-------------------------------------------------------------|
| <input type="checkbox"/> Paper or Card | <input type="checkbox"/> Flexiable plastic |
| <input type="checkbox"/> Hard plastic | <input type="checkbox"/> Polystyrene |
| <input type="checkbox"/> Metals | <input type="checkbox"/> Organic waste (plants/ food waste) |
| <input type="checkbox"/> Glass | <input type="checkbox"/> Solvents |
| <input type="checkbox"/> Paints | <input type="checkbox"/> Other chemicals |
| <input type="checkbox"/> Oils | |
| <input type="checkbox"/> Other (please specify) _____ | |
| <input type="checkbox"/> Other (please specify) _____ | |

2. Have you identified the main sources of waste on your site?

- | | |
|-------------------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> Suppliers packaging | <input type="checkbox"/> Disposable or broken equipment |
| <input type="checkbox"/> Off cuts, unusable or left over material | <input type="checkbox"/> Damaged product or seconds |
| <input type="checkbox"/> Product | <input type="checkbox"/> Cafeteria or food waste |
| <input type="checkbox"/> Maintenance or other onsite activities | |
| <input type="checkbox"/> Other (please specify) _____ | |
| <input type="checkbox"/> Other (please specify) _____ | |
| <input type="checkbox"/> Other (please specify) _____ | |

3. Are there any seasonal or other influences that cause the amount of some wastes to increase? What are they?

WASTE

Audit

NO YES

1. Have you completed a waste audit for your site?

Urgent Action

NO YES

2. Do you have a permit or consent for any trade waste discharges?

NO YES N/A

3. Are any liquid wastes discharged directly from your site onto or into land or water?

If yes – is it either a permitted activity or do you have a resource consent?

NO YES N/A

4. Are any wastes disposed of on site by burying or burning?

If yes – is it either a permitted activity or do you have a resource consent?

STORAGE

Poor storage of wastes can increase your environmental liability. Reduce your risk by going through the checklist below

Are all wastes, reusable and recyclable materials stored appropriately - Are they:

- Situated indoors OR outdoors on a paved impermeable surface free of cracks and gaps
- Under a roof or securely covered, to prevent rainwater getting into them
- Stored away from storm water drains, waterways or environmentally sensitive areas
- Secure from vandals, vermin or accidental damage
- Kept away from incompatible materials and ignition sources
- Recyclables free from contamination by other materials
- Tidy – not a hazard to people or eyesore for neighbours.

NO YES

5. Are your waste and recycling bins in good repair; no holes, leaks or rusted weak spots?

NO YES

6. Are bins for recycled materials clearly marked? (Pictures or colour coding bins or signs may be helpful).

NO YES

7. Are recycling and waste bins checked regularly by a reliable person to ensure only the correct materials are going into each bin?

NO YES N/A

8. Do bulk liquid wastes have secondary containment?

NO YES N/A

9. Do you have suitable spill material and equipment to deal with a liquid waste spill?

NO YES N/A

10. Do you separate out or treat any liquids wastes before disposal?

11. Do you separate your solid waste between recyclable, reusable and waste for disposal?

| NO | YES |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |

HAZARDOUS WASTE

12. Have you checked your obligations under the HSNO Act for the storage and handling of hazardous substances and hazardous waste on your site?

| NO | YES |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |

13. Are flammable hazardous wastes (waste oil, solvents etc) stored away from ignition sources, and flammable materials such as the paper recycling bin, or wooden pallets?

| NO | YES | N/A |
|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

14. Are wastes containing incompatible substances kept separate?

| NO | YES |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |

15. Are hazardous wastes separated from general waste and disposed of appropriately?

| NO | YES |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |

16. Do you treat or dilute your hazardous waste on site?

| NO | YES |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |

If YES do you have any applicable licences, test certificates, permits or consents to do this?

Setting some waste reduction goals for your business

To minimise waste and wasted resources, look at your site as a process, following your inwards goods (Beginning), through the activity's that happen on your site (Middle), to what finally leaves your site (The End) to see where you could make waste reduction improvements. If you identify an area where you could make a positive change write it as a goal in the goals box at the end of this section, or on another sheet of paper.

Beginning (what is coming onto your site)

Start at the beginning; look at what is coming into your workplace to see what you could change to reduce waste.

17. Can you reduce supplier's packaging waste,

- Buying in bulk
- Getting more frequent deliveries
- Using different suppliers
- Ask your suppliers to use less or different packaging
- Choosing suppliers that use reusable packaging and take it back.

| NO | YES |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |

18. Can you prevent perishable items being wasted by using better inventory control? e.g. buy less and use the oldest first?

| NO | YES |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |

19. Can you reduce waste by purchasing reusable rather than disposable items? Such as reusable rather than disposable aprons or masks?

| NO | YES |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |

20. Are recycled materials used where possible in production, or do you use materials and packaging that are easily recycled by your customers (product stewardship)?

| NO | YES |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |

WASTE

The Middle Bit (what happens on your site)

Look at what you do in your workplace, and see what waste could be prevented from going to landfill by changing practises or making the right facilities available.

NO YES

21. If you are in an area with kerbside recycling, do you have a recycling bin in your lunch or staff room? (Check with your city or district council to see what limits there are on what business can put out).

NO YES

22. Are reusable/ recyclable materials separated on site? The following table will allow you to evaluate your current activity's to identify any opportunity's.

| | Is separated | could be but isn't | cannot be | don't have |
|------------------------------------------|--------------|--------------------|-----------|------------|
| Paper | | | | |
| Cardboard | | | | |
| Packaging | | | | |
| Hard Plastics | | | | |
| Flexi Plastics | | | | |
| Polystyrene | | | | |
| Metals 1: | | | | |
| Metals 2: | | | | |
| Glass | | | | |
| Solvents | | | | |
| Paint | | | | |
| Organic Material (including food scraps) | | | | |
| Building Materials, wood | | | | |
| Building materials, concrete/ asphalt | | | | |
| Building Materials, other | | | | |
| Electrical | | | | |
| Other 1: | | | | |
| Other 2: | | | | |
| Other 3: | | | | |

NO YES

23. Have you trained your staff on how to minimise waste, what can be recycled and how to recycle it at work? Do they understand what to do and why?

NO YES

24. Can you adjust your processes or educate employees so damaged products are reduced; you have less seconds, off cuts or wasted raw materials?

NO YES

25. Can you improve office or 'paper chain' practises to reduce the amount of paper and office materials you use? e.g. print 'double sided' or 'two up'; offer customers emailed newsletters; statements; accounts; or catalogues/refill ink cartridges.

Hazardous or Special Wastes

NO YES N/A

26. If you have waste that is hazardous or requires special handling, have you looked at alternative substances or methods that would eliminate the hazardous waste or reduce its volume or toxicity?

27. If you have hazardous or special wastes removed from your site do you know where they go and how they are disposed of?

NO YES N/A

28. Do you or have you ever asked for proof of proper disposal?

NO YES N/A

The End (When goods or materials leave your site)

29. When designing new products or services do you consider environmental factors such as:

- Using recycled materials,
- Making your products easily recyclable
- The environmental friendliness and recyclability of your packaging.

NO YES N/A

30. Have you considered using the Waste Exchanges to find other uses for your waste, or donate suitable reusable materials to schools, kindergartens or community groups?

NO YES N/A

31. Are you part of or promote product stewardship schemes, take back, or refill schemes?

NO YES N/A

32. Do you give advice on the best way to recycle/ reduce waste to the public/ your customers?

NO YES

Your sites waste minimisation plan and goals

List the types and/or sources of waste that you think you could or would like to reduce the amount of going to landfill. It is important to record the costs versus the benefits of your waste reduction projects to help to show your progress and gain resources to complete projects.

Write these as goals, you can have as few or as many goals as you like; you may wish to prioritise your goals or mark them as immediate, middle or long term goals. Use the Site Waste Minimisation Plan at the end of this module to list sources of waste at you site.

CROSS CHECK

33. If as a result of any waste minimisation activities you do any works that affect your drainage system, are they shown on your drainage plan?

NO YES

34. Have you checked your maintenance plans and housekeeping procedures to see that they fit with any altered or new waste minimisation procedures?

NO YES

35. Are liquid wastes managed to prevent spills? Does your site have a Spill Kit and Spill Procedure – see the spills section?

NO YES

36. Are hazardous wastes handled and stored appropriately for the hazard they pose? And do they meet any HSNO requirements?

NO YES

■ **ACTION LISTS**

If you ticked a (highlighted box) or noted down a goal put this on your action list.

■ **SIGNS OF SUCCESS**

By the time you have completed this section you should have:

- An understanding of the financial cost of disposing of your waste
- And understanding of what materials you are throwing away
- Have identified key materials that could be prevented from becoming waste by reduction, reuse or recycling
- Have identified the causes of waste materials in your business
- You have an understanding of the financial benefit of recycling waste materials
- You have a plan on how to evaluate and minimise waste on your site .



Site Waste Minimisation Plan

| Waste Type / Stream | Current Costs | Source of Waste | Waste Minimisation Solution/Goal | Implementation Costs |
|-----------------------------------|---------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| e.g. Paper with spray paint on it | | Vehicles being painted | Paper to be recycled, not put in bin. Manager to ring recycling company to arrange bin, everyone told at staff meeting. To to check bins | |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |

