

## Introduction

There is an old adage that says: 'where there's muck there's brass'. Certainly that is literally true as anyone who has visited a manufacturing plant in the last few decades will testify – razor sharp swarf from myriad capstan lathes and latterly CNC machining centres is collected in large skips to be collected, sold and recycled. A staggering 600 million tonnes of raw materials are turned into goods each year in the UK. That isn't strictly true as perhaps equally surprising, for every tonne of product consumed 11 tonnes of natural resources are used. This resource is finite as anyone who has to compete for raw materials with China will know only too well. Over 90% of the resources we consume are either thrown away or discharged to the environment as effluent or air emissions.

## What is Waste?

This information sheet primarily deals with materials rather than energy and water. Please see separate Vision 21 info sheets on these subjects. There are many forms of waste, including unpleasant sounding: sludge, washings, dust, offcuts, spillage and cleavage error! These enter our air, water and landfill after treatment, which costs your organisation money. Waste can contaminate land and water courses and adversely affect local air quality if legal compliance is not met.

## Is it a Waste of Time to Worry about Waste?

No, it's back to that old adage! Typically 1% of business turnover or £1,000 per employee can be saved. In a case study of an engineering company with an annual turnover of £20 million the cost of waste disposal was £50,000. However this isn't the true cost of waste – a third of the raw materials purchased became waste, which is quite wasteful really! And really wasteful when the accountants discovered that this equated to £670,000 which was half of all the profit that the company made. Waste was subsequently reduced to 10% and over three years the company saved over £1 million.

## Where Savings can be Made

• Raw materials for production	1- 5%
• Packaging	10-90%
• Ancillary materials	5-20%
• Consumables	10-30%
• Electricity	5-20%
• Heat for process and space heating (gas, oil)	10-30%
• Vehicle fuel	10-30%
• Water	20-80%
• Trade effluent	20-80%
• Solid and liquid waste	10-50%

## There are also Benefits to Employees

- Improved working conditions
- Cost savings can be spent on training
- Greater motivation as most workers aren't as happy as pigs in muck
- Improved recruitment and staff retention

## The Waste Hierarchy

**Elimination** - If it is accepted that a proportion of any raw material will end up as waste, it stands to reason that if you can avoid a machining operation for example or a

delivery then this is zero waste.

**Reduce** – By process-planning and thinking about product design the amount of waste produced can be minimized.

**Re-use** – Use items as many times as possible. E.g. if you are drilling holes make sure the equipment is good quality so that the drill bit does not need to be re-sharpened frequently (or disposed of) and the drill does not wear out too quickly. Or re-use packaging rather than putting them in your skip.

**Recycle** – Recycle what you can, only after you have re-used it as much as possible.

**Disposal** – The last step, but a lot less if steps 1-4 are followed.

## Instigate a Waste Minimisation Programme

In order for this to be successful, management needs to be committed and all levels of staff need to be involved. Finally, funding needs to be made available to allow implementation. There is an interesting Environmental Technology Best Practice Guide entitled: 'Saving money through waste minimisation: teams and champions' (GG27) which is available from Envirowise that shows how important appointing a dedicated team to this task is, and in particular the importance of having a 'Champion'. The Champion's task is to identify and put in place the communications, resources, action programmes and training to ensure the projects success. There is also a more strategic guide for managers, also from Envirowise called 'Waste minimisation for managers' (GG367) which gives a more holistic view. The basic steps are:

- Collect accurate data regarding raw material and energy use (which is spiralling ever upwards as oil has doubled in price in a year and regardless of cost there is always a price for the environment to pay in carbon emissions).
- Reporting for monitoring and targeting purposes must be regular and maintained.
- The programme must include regular reviews to assess progress and set future priorities.
- Make sure that all members of staff are kept informed of progress.

## The Practise of the Plan

- Step 1 Win support and commitment
- Step 2 Appoint a 'champion' and establish a team
- Step 3 Assessment Phase
- Step 4 Ranking the options
- Step 5 Developing an action plan
- Step 6 Carry out the plan

Further dedicated local assistance is available from the Gloucestershire Resource Efficiency Club and specifically, the Environmental Business Support Programme, which is a partnership between the University of Gloucestershire, Parklife, Business Link, Envirowise and the Environment Agency. For further details contact Alex Steele at the University of Gloucestershire: <http://www.glos.ac.uk/>.