

### How to Measure Environmental Impacts

How do you know what your environmental impacts are, whether you are improving your performance and meeting your objectives and targets? Without careful monitoring you will not be able to recognise the full impacts of activities in order to improve your environmental management.

#### What data do you need to collect?

- You will need to collect data on your important environmental impacts, which probably include: energy, waste, water, travel and purchasing.
- Other data you may wish to gather (dependent on business type):
  - o Materials bought (amounts and types e.g. recycled)
  - o Quantity of hazardous waste produced
  - o Water emissions
  - o Air emissions
  - o Packaging sent out
  - o Number of pollution incidents
- Measure these impacts both in terms of amount used/generated and also their cost.

Environmental Impact	Jan	Feb	...	Total 2008
Electricity (kWh)				
Electricity (£)				
Gas (kWh)				
Gas (£)				
Water (m <sup>3</sup> )				
Water (£)				
...				

#### Decide what data to collect

You need to decide what area of your business activities you are going to monitor. If you have a single site, this may cover all operations. If you have a number of premises or different fields of operation, you may wish to tackle these separately.

#### How to collect data

Monitoring should occur on a regular basis, and provide consistent information. This requires a defined system or procedure for data collection.

- Some impacts may already be measured, without you realising it! For example:
  - o Electricity consumption may be measured through regular readings of the meter.
  - o Finance is likely to keep track of costs and figures for utilities.
- Using METERS:
  - o These are an accurate and simple means of collecting monthly gas, electricity and water data.
- Using INVOICES:
  - o These gather cost information, and may also contain information about energy use in kWh or water use in m<sup>3</sup>.
  - o However, they are sometimes estimated and so not necessarily accurate.
  - o You may be able to measure: waste removal volumes, petrol use, paper purchasing.
- Using WORK PROCEDURES:
  - o Stock records or expense forms may be used to monitor transport and paper use.
- Performing an AUDIT:
  - o Where specific records are unavailable, you can calculate materials/energy use by monitoring measurable indicators. E.g. your waste output by the number of bins and frequency of collection.
  - o You will need to ensure that you record the basis of your assumptions for each calculation, e.g. assume rubbish bins are full at time of collection.



All collected data must be understood by a wider group of people than the single person collecting it! Units, date, which meter was read etc should be noted at the time of collection.

- Make sure that all collected data is relevant. Collecting extra data could be a waste of time.
- Data collection can have limitations. It is very difficult to get 100% accurate data with 100% confidence, and is unlikely to be worth the time and effort spent collecting it.
- For each procedure, you need to determine for whom it is most convenient to collect the data. Discuss this with them in advance to optimise monitoring methods.
- Make sure collection methods are reproducible so that comparable datasets can be made by different people in different departments, or by different staff from year to year.
- You may wish to revise collection methods and data collected after the first few months to make sure that output is relevant and fit for purpose.

### Converting figures into CO<sub>2</sub> emissions

- The Department of Environment, Food and Rural Affairs (DEFRA) have published a set of conversion factors so that all energy forms (e.g. electricity, oil, petrol, gas) can be converted into their equivalent CO<sub>2</sub> emissions. You can find these figures at:  
<http://www.defra.gov.uk/environment/business/envrp/pdf/conversion-factors.pdf>

### Monitoring Procedures

- Monitoring needs to become regular business practice.
- Procedure should:
  - Contain step by step instruction.
  - Be relatively simple: accuracy and practicality need to be traded off here to make sure that the monitoring system doesn't take too long.
  - Include people's responsibilities and timescales for action (monthly, quarterly).
- Regularly review the data collected. This will allow you to spot cost-saving opportunities early on, as well as identify any urgent problems that need to be addressed as you go.
- Data should also be 'sanity checked' to ensure that decimal points are in the right place etc.
  - Benchmarking your data against a comparable business may help with this. 'Green Officiency', available free from Envirowise at [www.envirowise.gov.uk/page.aspx?o=118465](http://www.envirowise.gov.uk/page.aspx?o=118465), has figures you may find useful for comparison.
- Report successes and improvements to both staff and management to encourage further improvement and grow support for the programme.

### Making it interesting

- Put data in context of the number of staff or £ turnover to provide comparative data that takes rises and falls in company workload into account.
- You could use images to make these figures or graphs easier to read at a glance.
- Other comparisons may be appropriate and fun.
  - For example, recycled paper content as the number of trees saved, CO<sub>2</sub> emissions to car miles driven...
  - A little imagination here could make this relevant to your company and communicate strongly with staff.