

# **CHANGING BEHAVIOUR - SAVING RESOURCES**



**A GUIDE TO IMPROVING  
ENVIRONMENTAL  
PERFORMANCE IN BUSINESS**



**GALWAY WASTE PREVENTION PROGRAMME  
September 2009**

# CONTENTS

<b>Introduction</b>	<b>1</b>
<b>Waste Prevention Programme</b>	<b>2</b>
<b>Prevention in Action</b>	<b>3</b>
<b>Introduction</b>	<b>1</b>
<b>Waste Prevention Programme</b>	<b>2</b>
<b>Prevention in Action</b>	<b>3</b>
<b>Introduction</b>	<b>1</b>
<b>Waste Prevention Programme</b>	<b>2</b>
<b>Prevention in Action</b>	<b>3</b>
<b>Introduction</b>	<b>1</b>
<b>Waste Prevention Programme</b>	<b>2</b>

# INTRODUCTION

This information booklet aims to provide you with the information required to implement good environmental practices in your workplace that will not only assist in improving your environmental performance, but should also help you to save some money.

The booklet will give you guidance and outline potential actions for environmental improvement which should help you along the environmental journey.

Managing your environmental performance means putting systems in place within your business that will allow you and your staff identify areas where excess waste is produced, or where excess energy or water is consumed in the course of your day-to-day activities.

Many of the actions outlined in this booklet are suitable for implementation in business in general, but are based on the outcomes generated by the first phase of the Galway Waste Prevention Programme which focused specifically on retail, hospitality, fish processing, printing and paper based organisations.

Environmental improvements can be achieved by employing best practice techniques in efficiency and resource use. This can be achieved relatively simply by studying and monitoring the consumption of resources during a specific period and quantifying the business outputs at the same time.

The booklet is designed as a guide to help you along your journey, but is by no means exhaustive.



# THE GALWAY WASTE PREVENTION PROGRAMME

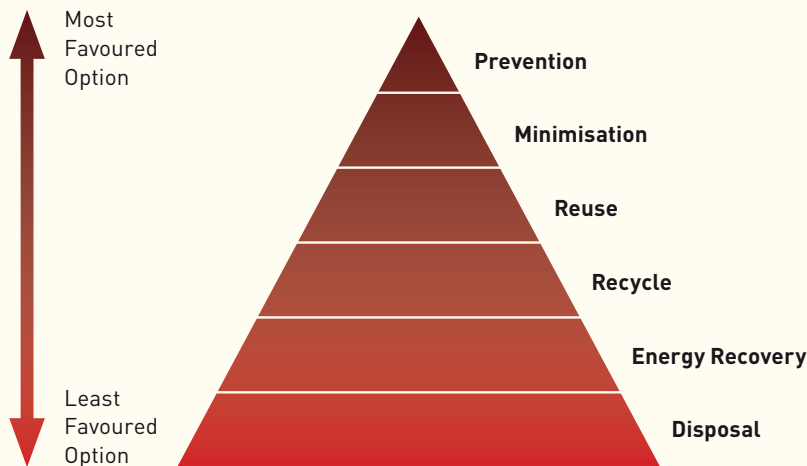
The Galway Waste Prevention Programme is an EPA funded programme that has been up and running since 2006. The project aimed at building capacity in waste prevention, energy conservation and water conservation across various sectors in Galway City and County by engaging with business,

public organisations and householders. The programme was based on identifying and implementing good practice and monitoring performance throughout various sectors.

To date, the programme has been very successful, highlighting where actions for prevention are identified

and implemented by a committed team, significant environmental improvements and financial cost savings can be made.

This brochure will give guidance and information based on the experiences of the Galway Waste Prevention Programme.

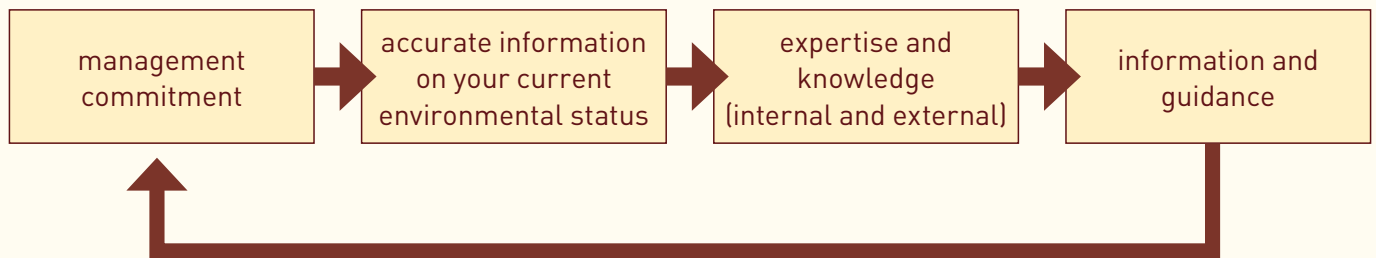


## OUTCOMES OF THE GALWAY WASTE PREVENTION PROGRAMME

Waste in participating business prevented	16%
Reduction in energy consumption by participating business	9%
Reduction in water consumption by participating business	18%
Reduction in waste arising in households	11%
Reduction in energy consumption in households	9%
Reduction in water consumption	12%

# PREVENTION IN ACTION

To successfully implement prevention in business you need the following:



## STEPS TO IMPROVING YOUR ENVIRONMENTAL PERFORMANCE IN BUSINESS

### Get familiar with your environmental issues

- Know what your waste, energy and water expenditure is by examining your invoices and placing information on a data sheet

### Establish an Environmental Improvement Programme

- Develop a plan
- Designate a staff member

### Involve Your Staff

- Introduce environmental awareness to your staff
- Include environmental issues in your staff training
- Seek suggestions from employees
- Have competitions for employees

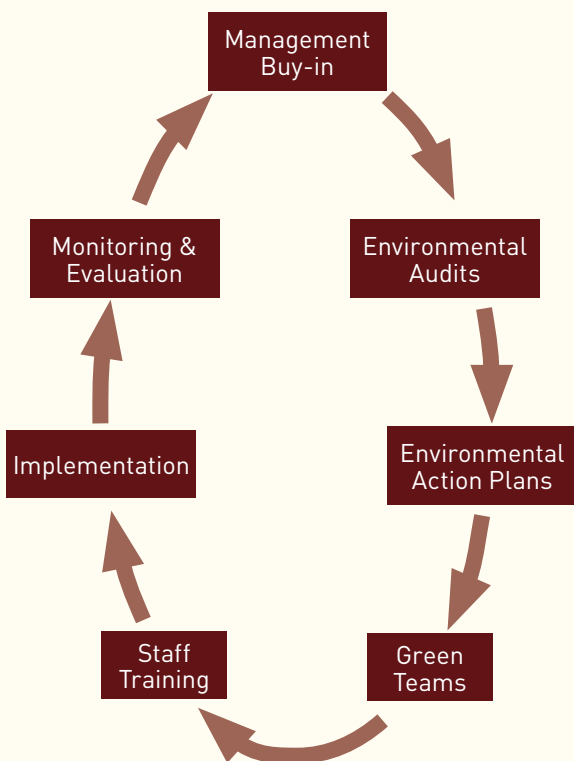
### Be Creative

- Use visual tools like charts and graphs to highlight progress
- Keep environmental issues on the agenda
- Use communication tools like email, newsletters, and notice boards to highlight progress

# GOOD PRACTICE IMPLEMENTATION

In order to successfully implement good environmental practices in your business, it is recommended that you follow a structured approach.

The approach outlined in this diagram is the approach used in the implementation of the Galway Waste Prevention Programme:



<b>Management Buy In</b>	Support, commitment and continual monitoring from management is critical for the successful implementation of this type of programme in business.
<b>Environmental Audits</b>	The preparation of environmental audits is necessary to establish baseline information for your business in relation to waste, energy and water.
<b>Environmental Action Plans</b>	The preparation of environmental action plans outlining no cost, low cost, medium cost and high cost improvements is essential. It is also important to place timeframes on all potential actions for improvement. Estimated payback on actions should also be calculated and included.
<b>Green Teams</b>	Green Teams should be established and should represent the entire workforce. Green team meetings should be regular and all staff should be informed of outcomes and developments.
<b>Staff Training</b>	All staff should receive appropriate training which should reflect the actions as set out in the environmental action plans.
<b>Implementation</b>	Actions for environmental improvements should be implemented in a structured and strategic manner.
<b>Monitoring and Evaluation</b>	Monitoring and evaluation should be ongoing. It is extremely important to quantify improvements and also address difficulties if they arise.

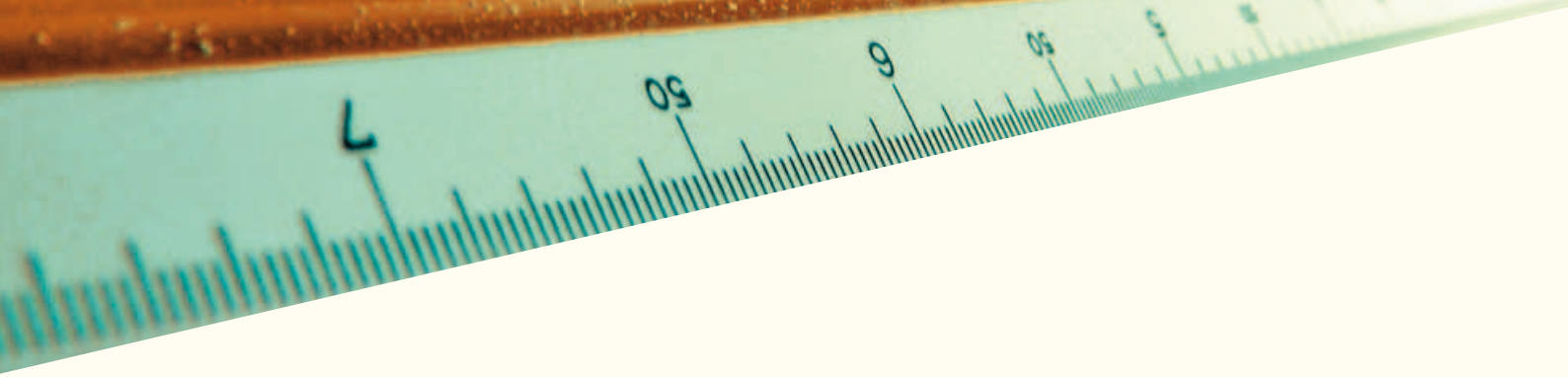
# GOOD HOUSEKEEPING

Whether you are starting an environmental programme from scratch or simply checking the effectiveness of an existing management system, the basic steps which you should consider include:

- Management commitment to improvements
- Staff involvement
- Identification of realistic achievable targets
- Continual monitoring

The combined effect of the above is an improved environmental performance and a competitive advantage for your business.

Improved resource use and prevention opportunities are easy to identify when you have clear and comprehensive information about your company's activities.



# KEY PERFORMANCE INDICATORS

The identification of key performance indicators are very important as you undertake environmental improvements in your business. Key performance indicators will allow business compare previous environmental performance with current practices and also monitor and evaluate improvements. KPIs are calculated by comparing different operational periods and resources used against production or a sector based constant. For example, in the hospitality sector it is common to use the number of sleeper nights and/or food covers for comparisons while in the retail sector, the standard typically used is either floor area or customer footfalls.

## Key performance indicator examples include:

- kg of waste per customer/footfall
- kWh energy use per m<sup>2</sup> per year
- litres of water used per tonne of production
- kg of waste per tonne of production
- floor area in m<sup>2</sup>
- bed nights sold

# BENEFITS OF IMPROVING ENVIRONMENTAL PERFORMANCE

In addition to the environmental improvements that can be achieved in business by introducing good housekeeping measures, potential additional benefits include:

- Marketing
- Economic Competitiveness
- Increased Awareness

## MARKETING

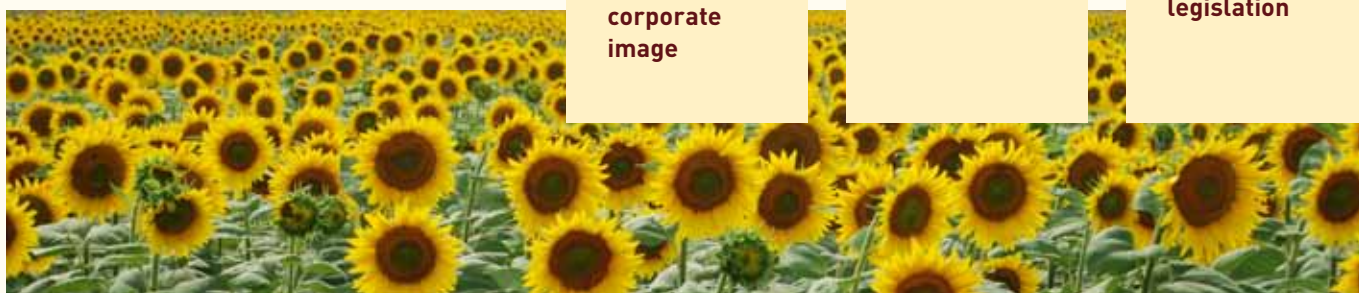
- Capture 'green business' customer demand
- Corporate social responsibility
- Enhanced corporate image

## ECONOMIC

- Reduced resource consumption
- Cost reductions through improved efficiency

## AWARENESS

- Increased capacity amongst staff
- Increased awareness of current and future environmental legislation





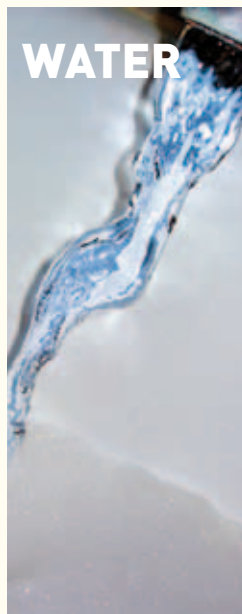
# ENVIRONMENTAL MANAGEMENT CHECKLIST

Environmental management is an all-encompassing process that should include every aspect of an organisation from finance, human resources and public relations to maintenance, purchasing and planning.

The principal barrier to developing, implementing and maintaining a full and effective environmental management system in small and medium size business is sometimes a lack of expertise within the workforce of how to deal with environmental issues.

To help you get started, the following pages include various checklists that outline some of the elements that you should consider as you undertake to improve your environmental performance.

## AREAS FOR CONSIDERATION





# WASTE MANAGEMENT

Significant savings can be made by ensuring that waste is managed properly in business. It is important to identify the quantity and type of waste you produce. Once this is done, it is then time to look at your waste and see what can be prevented. All materials suitable for recycling should be segregated at source and bagged or compacted and stored appropriately.

Many business will save 10% on their waste costs by implementing no cost and low cost waste solutions. By implementing some of the following initiatives you will improve your environmental performance:

- Analyse waste at source – check how much cardboard, plastic and other waste you produce – identify what may be preventable
- Improve segregation and recycling by using clear bags
- Improve waste management by placing bins as near as possible to where the waste is generated
- Use returnable packaging
- Ask suppliers to decant supplies at back door where appropriate
- Assign responsibility to this task and monitor regularly



## Food Waste

If your business serves food, reducing your food waste should be a priority, as doing this will improve you environmental performance and save you money. No investment is required – it's just a matter of implementing some simple housekeeping procedures:

- Look at portion control – too large and it is a waste
- Introduce a stock rotation policy – this will prevent out of date stock becoming waste
- Label and date food in reusable containers
- Introduce staff training and standard recipes for consistent results
- Cut down on food waste by vacuum packing food
- Reuse left-over food where appropriate

The cost of your waste is not so much the cost of disposing of it as much as the value of what you are getting rid of.



# WASTE MANAGEMENT ACTIONS CHECKLIST

## General

	Done	To Do	N/A
Know how much waste you dispose of	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Know the cost of waste disposal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Designate a person to monitor waste on site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ensure maximum recycling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Review waste management practices regularly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Request suppliers to use reusable and returnable packaging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monitor waste handling by staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identify ways of reducing your food waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Educate staff about separation at source	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Packaging

	Done	To Do	N/A
Investigate returning packaging to suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ask suppliers to minimise packaging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compact cardboard and plastics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use shredded paper for infill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Buy in bulk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Canteen

	Done	To Do	N/A
Have sufficient recycling receptacles throughout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Create a list of reusable/recyclable items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use non-disposable tableware and cutlery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provide milk, sugar and coffee in containers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compost organic waste on site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use cloth towels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Office

	Done	To Do	N/A
Reuse scrap paper – have collection points near printers / photocopiers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Return unwanted post and remove name from junk mail databases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Set up a central collection point for reusable office supplies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use email and bulletin boards for office communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Encourage double sided printing and photocopying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Switch off cover sheet option on faxes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recycle printer and toner cartridges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use re-usable inter-office envelopes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Process

	Done	To Do	N/A
Separate materials at source, particularly valuable ones (e.g. metals, solvents etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Investigate start up/shut down wastes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Optimise the cutting of materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Regularly inspect equipment and process lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Install solvent leak detectors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Substitute hazardous materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identify further uses for materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





# ENERGY MANAGEMENT

In business the use of electricity, oil and gas will in general make up your total energy spend. Depending on the type of business, there will be variations between these energy sources.

Monitoring and management of electricity, oil and gas on site is very achievable, once you know how. You should endeavour to monitor usage by taking regular meter readings, comparing use with production or turnover and monitoring invoices through inputting data onto a data sheet.

If you take electricity for example, one of the easiest ways to reduce your electricity cost is to ensure that you are on the correct tariff. Check with the various energy suppliers to see what they charge. For a full list of companies see the commission for energy regulators website [www.cer.ie](http://www.cer.ie). Try and avoid estimated electricity bills as this can sometimes prove difficult with cash flow. Where possible, supply your electricity supplier with monthly meter readings by phone or through email.

**Your total electricity cost is made up of a number of components which include:**

- Cost per unit
- kWh which are the amounts of units you use
- Standing charges and VAT

If you want to reduce your environmental costs then you need to take action in a number of different areas, keeping in mind that improving equipment efficiency, improving housekeeping and addressing issues with refrigeration should make a big difference.

The following checklist is a good way to start your in-house programme:

## ENERGY MANAGEMENT ACTIONS CHECKLIST

### General

	Done	To Do	N/A
Quantify your annual energy consumption	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quantify your annual cost of energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identify a staff member to monitor energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Review you energy management practices annually	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monitor energy usage on site by staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identify ways of reducing your energy consumption	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examine energy tariff for best deal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Investigate alternative energy suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examine bills for wattless charges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Run staff awareness campaigns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Purchase AAA energy-rated equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check buildings regularly for draughts and signs of damp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adequately insulate the building (roofs, cavity walls, lofts etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## Office-based

	Done	To Do	N/A
Activate energy saving devices in computers (standby mode, automatic shut down)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Switch off office equipment when not in use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ensure heating controls are working and set correctly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clean fans and filters for AC/heating systems regularly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Avoid open windows when heating is on	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Lighting

	Done	To Do	N/A
Ensure all lights are off during periods of non-occupancy and exterior lights when not needed (inform staff)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use energy efficient and long life lighting (up to 70% savings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check if fewer lights meet lighting requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check if timers and motion sensors can be used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check if lights are cleaned annually	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label all light switches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Heating

	Done	To Do	N/A
Organise heating systems to enable more control in specific areas (use localised heating)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use high efficiency boilers - monitor and service regularly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stop simultaneous heating and cooling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check thermostat settings regularly and situate thermostats correctly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heating and cooling should be co-ordinated with occupancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insulate hot water pipes and valves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ensure all heating sources are unobstructed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Refrigeration

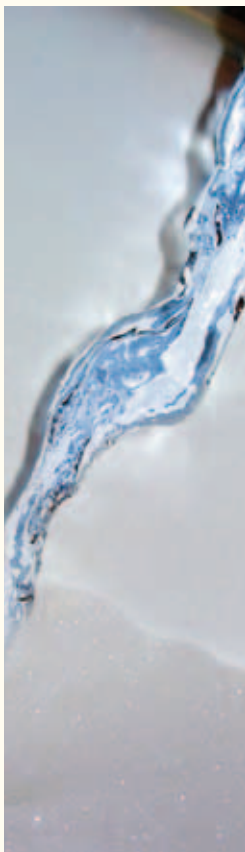
	Done	To Do	N/A
Place cooling units (especially condensers) away from heat sources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keep doors to freezers and cold rooms closed at all times	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintain condensers and fans regularly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check seals on fridges and freezers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Site-based

	Done	To Do	N/A
Identify and control peak loads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fit external doors with door closers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check buildings regularly for draughts and signs of damp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Charge forklift truck batteries and other rechargables during off peak tariffs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Compressed Air

	Done	To Do	N/A
Inform staff of the expense associated with producing compressed air	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Establish a regular leak test and repair programme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check that compressed air is generated close to where it is used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check that compressors are turned off when there is no demand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check that the input air is taken from a cool source	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check that air inlet filters are maintained regularly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use variable speed drive compressors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



# WATER CONSERVATION

To conserve water and save money you need to implement a water conservation programme in your business targeting the main water using areas such as processing, delicatessens, kitchen and toilets. It is important to address the following:

- Check for and fix leaks
- Measure and monitor water consumption
- Install water saving devices
- Consider rainwater harvesting

## What can be done to conserve water?

- Install self closing tap with aerators
- Fit urinals / showers with water conservation devices
- Reduce cistern flush from 9 – 7 litres by using displacement devices
- Educate staff on better water usage
- Harvest rainwater

**A FAULT IN A TOILET CISTERN COULD COST IN EXCESS OF €1000 PER ANNUM.**



## Know your water consumption - get acquainted with your meter

It is important to know where your water meter is and how to read it. Keep in mind the following procedure:

- Locate the meter on your premises
- Lift the lid and flip up protective cover to reveal the dial
- Take the reading – black digits record cubic metres (1000 litres), which is what you are billed for

## How to know if you have a leak

Turn off all equipment and read your water meter just before the business is going to be empty for several hours. Upon return, read your meter again. If the reading has changed, water has been used somewhere.

If you cannot account for this usage, there may be a leak somewhere on the premises. Contact your plumber for advice and assistance.



# WATER MANAGEMENT ACTIONS CHECKLIST

## General

	Done	To Do	N/A
Quantify your annual water consumption	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quantify your annual cost of water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Designate a staff member to monitor water on site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Review your water management practices annually	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monitor staff water usage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identify ways of reducing your water consumption	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provide training to increase employee awareness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Benchmark water use figures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Office-based

	Done	To Do	N/A
Use water conserving fixtures (such as restrictors in taps, toilets and urinals)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Retrofit old or inefficient fixtures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Site-based

	Done	To Do	N/A
Analyse wastewater for physical and chemical properties	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check plant for leaks and water waste on a regular basis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shut off water to unused areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eliminate unnecessary wash-downs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consider water efficiency when purchasing equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consider alternative water sources (e.g. rainwater)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Install pressure reducing valves if pressure is too high	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Process-based

	Done	To Do	N/A
Minimise water use in equipment according to manufacturers recommendations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examine potential closed water loops within the system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Capture reject water and reuse after internal treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recover heat from hot wastewater	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use automatic shut off valves and flow restrictors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Return condensate to boilers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use counter-current washing and recycle used solvent for filtration and washing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arrange process so cleaning between batches is minimised (use bright paints first and work towards darker paints)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adjust solenoids, valves, nozzles and other equipment to minimise water use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspect and replace worn jets and parts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sweep areas clean instead of washing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When cleaning parts, use mechanical cleaning devices, improve draining before and after cleaning and use plastic bead blasting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



# CASE STUDY - RETAIL



## Introduction

This case study is based on a large supermarket with an average daily customer base of 3,200, floor area of 2,000m<sup>2</sup> and staff complement of 120 retailing a large variety of goods including delicatessen, butcher, grocery and off license.

## Waste

During 2008, 181 tonnes of waste was generated by this supermarket, 26% less than the same period during 2007 to which there was a significant cost saving associated. This transfers to approximately 0.17 kg of waste arising per footfall in 2007 to 0.13 kgs of waste in 2008. This was achieved through the implementation of preventative actions which included:

- improved existing waste segregation practices throughout store
- removal of compactor and replaced with receptacles for recyclables and landfill waste
- improved efficiencies through preparation of food
- more efficient use of balers
- delivery containers returned for reuse
- education and awareness

The key to success here has been waste segregation at source and allocating individual staff members specific areas of responsibility.

## Energy Management

The supermarket has begun to reduce energy consumption following participation in the Galway Waste Prevention Programme from 708 kWh/m<sup>2</sup> in 2007 to 695 kWh/m<sup>2</sup> in 2008. This has been achieved through improved housekeeping and the implementation of an energy awareness programme.

This supermarket now has access to a comprehensive energy monitoring system through their service provider which allows them to monitor energy usage on line.

## Staff Training and Capacity Building

There were two elements to training staff in this programme – training the managers and also training the individual staff members on site.

Staff training was undertaken sector by sector through the presentation of PowerPoint presentations. The training was delivered on-site to small groups working in specific areas of the business. The training was adjusted as required. Staff embraced the training and this allowed for an opportunity to discuss issues and look at improved operational practices.

## Outputs

	Kg of waste / footfall	kWh / m <sup>2</sup>	ltrs of water / m <sup>2</sup> / yr
2007	0.17	708	1.44
2008	0.13	695	1.32

## Conclusion

This supermarket was provided with hands-on expertise from the programme team who assisted the supermarket with the assessment of their environmental performance, made recommendations on cost-effective action plans, and assisted with the development of environmental management programmes.

The hands-on assistance provided by the project team significantly assisted the improved environmental performance of the business.



# CASE STUDY - FISH PROCESSING



## Introduction

This case study is based on a fish processing plant located in the Connemara area of Co Galway. The main fish processed here are salmon, trout and char. The facility operates approximately 243 days per year with a staff complement of 35. Production typically varies from 45 – 175 tonnes per week.

## Waste

During 2008, 19 tonnes of waste was generated by the processing facility, 30% less than the same period during 2007.

Prevention was achieved through the implementation of the following actions:

- Removal of skip and replaced with receptacles for waste segregation
- Education and awareness campaign
- Improved practices on-site
- Increased level of staff participation

Although the waste arising in general decreased, a slight increase still occurred per tonne of production.

## Energy Management

The processing plant has successfully reduced their energy consumption following participation in the Galway Waste Prevention Programme from 152 kWh/m<sup>2</sup>/yr in 2007 to 102 kWh/m<sup>2</sup>/yr in 2008. Although production did decrease during 2008, this figure has been achieved through improved housekeeping and an on-site energy awareness programmes.

The processing plant now has access to a comprehensive energy monitoring system through their service provider which allows them to monitor energy usage on line.

## Water Conservation

There is significant potential for water conservation in the fish processing industry.

Following the installation of water restrictors and improved water management in general, water use has reduced in this processing plant from 3847 m<sup>3</sup> in 2007 to 2304 m<sup>3</sup> in 2008.

## Outputs

	Kg waste / m <sup>2</sup>	kWh / m <sup>2</sup>	m <sup>3</sup> water / m <sup>2</sup>
2007	9.2	152	685
2008	6.1	102	646

## Conclusion

This fish processing plant was provided with hands-on expertise from the programme team who undertook an assessment of the plants environmental performance, made recommendation on cost-effective action plans, and assisted staff with the development of environmental management programmes.

This process proved very successful with environmental improvements being evident throughout the business.

This process is extremely useful as it can aid the quantification of resource use in comparison to the processing plant output.



# CASE STUDY - PUBLIC ORGANISATION



## Introduction

This case study is based on the work undertaken by Galway County Council to improve its environmental performance and resource use at headquarters at Áras an Chontae. The floor area at Áras an Chontae is 5,360 m<sup>2</sup> with a staff complement of 300 people.

## Waste

During 2008, approximately 75 tonnes of waste was generated by Galway County Council and following capacity building and intervention the amount of waste produced per staff member reduced in the second half of 2008 by 15%. The success of the programme at Galway County Council is attributed to:

- Management commitment
- Improved existing waste management practices throughout the organisation
- Introduction of energy and water conservation initiatives
- Communication programme
- Capacity building and staff training

## Energy Management

The organisation has successfully reduced energy consumption following participation in the Galway Waste Prevention Programme from 129 kWh/m<sup>2</sup>/yr in 2007 to 120 kWh/m<sup>2</sup>/yr in 2008.

This success was achieved through improved housekeeping, energy awareness programmes, staff training and capacity building.

The organisation also now has access to a comprehensive energy monitoring system through their service provider which allows them to monitor usage on line.

## Water Conservation

A water conservation programme was also undertaken by Galway County Council. Based on the installation of a green button in all the toilets and the implementation of a corresponding awareness campaign, water consumption reduced from 6,205m<sup>3</sup> in 2007 to 5,475m<sup>3</sup> in 2008.

## Capacity Building

Capacity was built amongst staff through a series of training sessions, the establishment of an intranet site and the circulation of good practice posters, emails etc. The training consisted of a series of PowerPoint presentations delivered on site to small groups working in specific areas of the organisation. The training was adjusted as required. Staff embraced the training and this allowed for an opportunity to discuss issues and look at improved operational practices. Training is an integral part of any successful campaign and needs to be continually updated and monitored.

A Green Team was established who participated in setting up procedures to improve the organisations environmental performance.

## Outputs

	kWh / m <sup>2</sup>	m <sup>3</sup> water / yr
2007	187	6,205
2008	180	5,475

## Conclusion

Staff at Galway County Council were provided with hands-on expertise from the programme team who undertook an assessment of the organisations environmental performance, made recommendation on cost-effective action plans, and assisted staff with the implementation of new improved environmental programmes.



## GREEN HOSPITALITY

The Green Hospitality Award Scheme is a national scheme that encourages improved environmental performance in hotels, restaurants, catering facilities in hospitals etc. Participants in this scheme undertake to improve their environmental performance and receive recognition for their endeavours by getting a Bronze, Silver, Gold or Platinum award.

As well as the environmental benefit, members can benefit from significant cost savings in the areas of waste, energy and water management. Members efforts are recognised through an annual Green Hospitality Awards scheme, which progresses from bronze through silver, gold and ultimately platinum level. Criteria for platinum level equates to the EU Eco Label standard.

For further information on the Green Hospitality Award, please contact the award scheme by email at [info@ghaward.ie](mailto:info@ghaward.ie), tel: 021-4354688 or check the website on [www.ghaward.ie](http://www.ghaward.ie)



Recipients of the Green Hospitality Award Eimear Kileen of Glenlo Abbey Hotel and Paul O'Hora of the Galway Bay Hotel with James Hogan of the GHA scheme



## GREEN BUSINESS

Greenbusiness.ie is a national initiative funded by the EPA, consisting of a very informative website for business, containing free advice and information on how to improve resource efficiency (energy, water and materials) and prevention of waste as its focus. On the website, [www.greenbusiness.ie](http://www.greenbusiness.ie) you are guided through the use of measurement tools for waste and water in your business and also includes a link to the Sustainable Energy Ireland (SEI) website ([www.sei.ie](http://www.sei.ie)) – in particular SEI's information on energy mapping tools for businesses.

These tools provide the basis for planning and implementing improvements in energy, water and materials usage and in waste prevention.

In time, through automatically generated bar charts, you can compare your performance with that of previous years, as well as being able to benchmark with external average performance within the same sector. All data is treated confidentially in accordance with the Data Protection Act.

Further information available from [contactus@greenbusiness.ie](mailto:contactus@greenbusiness.ie) or Freefone 01-8131086 or [www.greenbusiness.ie](http://www.greenbusiness.ie)









**Acknowledgements:**

The author would like to acknowledge the contribution made by the Environmental Protection Agency's Local Authority Prevention Demonstration Programme, Clean Technology Centre Cork and all participants in the Galway Waste Prevention Programme.

**Disclaimer:**

Although every effort has been made to ensure the accuracy of the material contained in this publication, complete accuracy cannot be guaranteed. Please contact the author for permission to reproduce all or part of this publication at [snimhain@galwaycoco.ie](mailto:snimhain@galwaycoco.ie).

