

Results of the

# Local Authority Prevention Demonstration Programme

(LAPD) 2006 -2009



**LAPN**   
Local Authority Prevention Network

## Foreward



The EPA welcomes the publication of this document which represents the culmination of 4 years work on the Local Authority Prevention Demonstration programme. The programme is an initiative funded by the Environment Fund through the EPA led National Waste Prevention Programme, in collaboration with Irish local authorities. A wide range of successful projects have been established to improve resource efficiency (waste, water and energy) practices in local businesses, communities and within the local authorities themselves with significant cost saving for client organisations.

The programme has successfully developed capacity for implementing prevention projects locally across the country and has demonstrated that local authorities can design and implement effective local integrated waste prevention programmes and projects.

Following on from this Demonstration programme, the Local Authority Prevention Network (LAPN) is a key component for continuing to build capacity in local authorities for the promotion of resource efficiency and waste prevention at a local and grassroots level for the benefit of their localities. This programme continues to demonstrate that implementing waste prevention and resource efficiencies in any organisation can lead to significant savings, in addition to the obvious environmental benefits. A holistic approach to resource efficiency, integrating waste prevention, water conservation and energy conservation also has an important part to play in contributing to meeting sustainability commitments by public authorities, including those in regional waste management plans and climate action plans.

I would like to congratulate the local authorities involved in the programme and the businesses/organisations who took part in these local prevention projects. A special word of thanks also to the Clean Technology Centre, Cork Institute of Technology, who provided invaluable input to these programmes.

### **Dr. Gerry Byrne**

EPA Programme Manager and Chair of the  
National Waste Prevention Committee



## Executive Summary

Over a four year period, 14 local authorities were funded under the Environmental Protection Agency's National Waste Prevention Programme.

These local authorities undertook ambitious actions across a range of sectors, including:

- PUBLIC ADMINISTRATION
- BUSINESS
- COMMUNITIES
- FARMS
- SCHOOLS AND 3RD LEVEL INSTITUTIONS
- HEALTHCARE
- RETAIL
- HOSPITALITY AND TOURISM

### In all, the following savings were made:

Direct Cost Savings	> €873,000 per annum
Waste prevented or Diverted	> 2,300 tonnes per annum
Water consumption Reduction	> 37,500 tonnes per annum
Energy reduction	> 1,530,000 kWh per annum

- More than 2,500 people participated.
- Almost 300 audits were performed.
- 26 people received accredited training in Waste and Resource Use Prevention. Others are being trained on an ongoing basis.

The capacity built up within local authorities, and the ability and experience of the personnel involved, can ensure successful development of future resource efficiency programmes within Ireland. Indeed, Irish local authorities can now be regarded as leaders in this respect.



## What is the National Waste Prevention Programme?

The Minister for the Environment, Heritage and Local Government launched the National Waste Prevention Programme (NWPP) in April 2004. The programme is led by the Environmental Protection Agency (EPA). The Minister also set up the National Waste Prevention Committee (NWPC), which includes a broad stakeholder group who meet periodically to provide strategic direction for the EPA in implementing the National Waste Prevention Programme.

The aim is to deliver substantive results on waste prevention and minimisation and to integrate a range of initiatives addressing awareness-raising, technical and financial assistance, training and incentive mechanisms.

(For further information, see [www.nwpp.ie](http://www.nwpp.ie)).

Among the various initiatives undertaken under the NWPP, one is specifically aimed at empowering Local Authorities. This is the Local Authority Prevention Demonstration Programme (LAPD), which was run between 2006 and 2009.

(For further information, see [www.ctc-cork.ie/lapd](http://www.ctc-cork.ie/lapd))

The LAPD subsequently led to the ongoing Local Authority Prevention Network (LAPN).

(For further information see [www.LAPN.ie](http://www.LAPN.ie) or [www.localprevention.ie](http://www.localprevention.ie))

**This summary document reports on the successes of the LAPD**



## What is Prevention?

Prevention means stopping materials entering the waste stream. It does not mean removing them after they have entered. This makes it quite unlike other environmental initiatives such as recycling and treatment.

Prevention also means the efficient use of resources (water, energy, and raw materials). It is sometimes, therefore, referred to as Resource Efficiency.

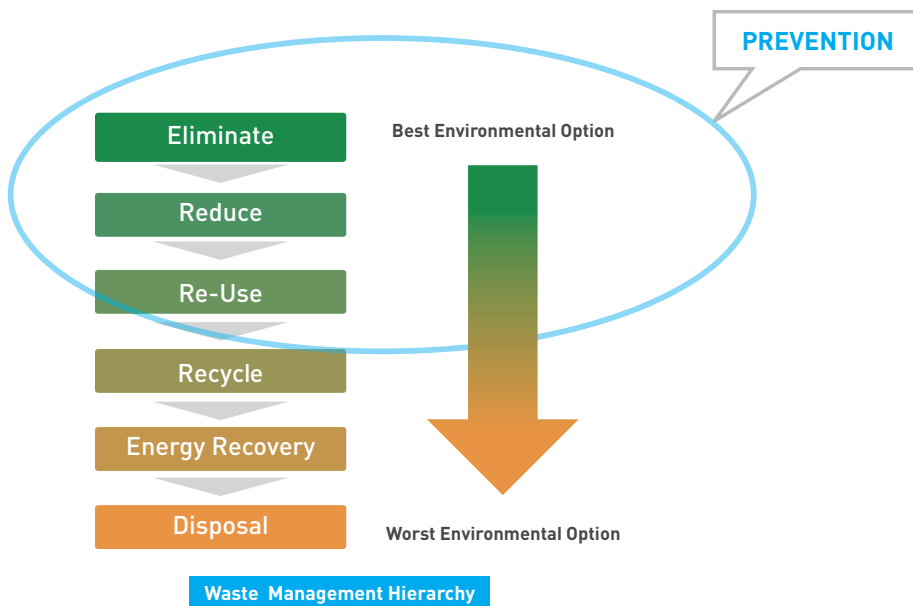
The National Waste Prevention Programme - Fifth Annual Report 2008/2009, uses the following definition for prevention:

### Elimination or reduction at source of:

- Materials, Water and Energy Consumption
- Waste arisings (solid, liquid, gaseous and heat)
- Hazardous or Harmful Substances

### Prevention is a holistic approach

The following diagram illustrates the focus of prevention activities within the Waste Management Hierarchy.





## How does Prevention Work?

Local Authorities have engaged in successful programmes such as recycling. Prevention involves moving up the Waste Management Hierarchy. Prevention requires an understanding of the sources and magnitudes of resource inefficiency, a methodology for generating and prioritising improvement options, and perhaps more importantly, widespread dissemination of results and techniques.

### This requires:

- monitoring and measuring
- generation of indicators and benchmarks
- idea generation
- improvement implementation
- reassessment
- continuous improvement

### Empowerment and a Bottom Up Approach

The LAPD programme sought to address and support previously identified successful prevention based activities by Irish Local Authorities. By empowering Local Authorities to initiate and sustain programmes within their region, initiatives on the local or individual level are also empowered. The European Union principle of subsidiarity is thus strengthened. It seems likely that the involvement of regional authorities can be more successful in the promulgation of prevention activities than those of top down, or national, initiatives. Thus, while programmes, such as the EPA's Cleaner Greener Production Programme (CGPP) offer 'top-down' approaches and represent a set of geographically dispersed projects, the LAPD initiative offers the possibility of quasi-'bottom-up' approaches. The two, together, offer real possibilities for radical improvement. In particular, the LAPD programme has led to a further localisation, and a true 'bottom up' approach.



## What is the Local Authority Prevention Network?

The Local Authority Prevention Network (LAPN) provides funding to 12 local authorities to engage in waste prevention and resource efficiency programmes and projects. It builds upon the successful Local Authority Prevention Demonstration programme and expands the number of local authorities involved.

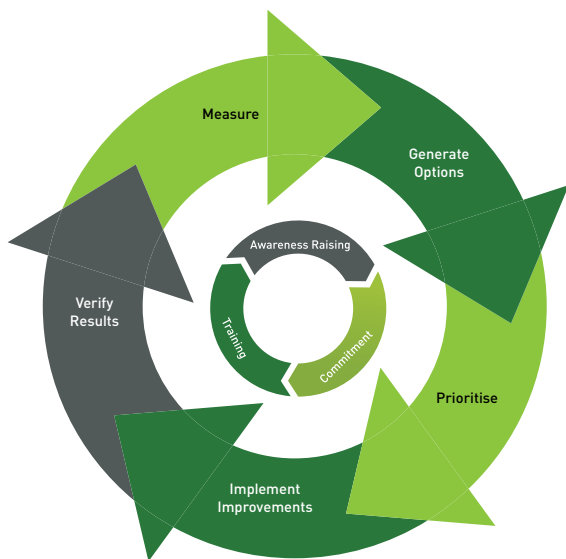
## What is the Local Authority Prevention Demonstration Programme?

The LAPD programme addressed and supported previously identified successful prevention based activities by Irish Local Authorities. Research has identified that the two principal barriers to implementing waste prevention in the local authority sector have been a lack of resources and a lack of expertise and expert support.

**The LAPD Programme helped to overcome these barriers by**

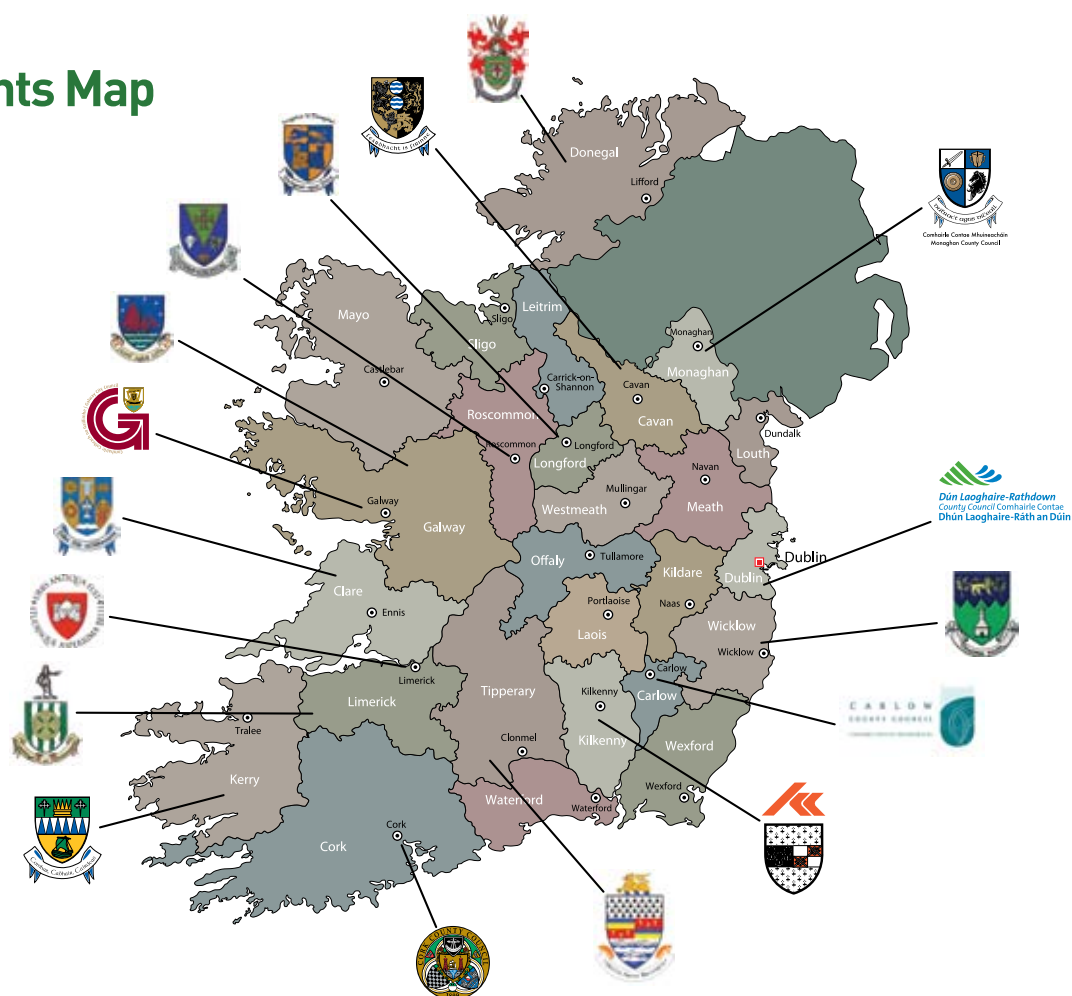
1. **providing grant aid** to selected local authorities who agreed to implement comprehensive prevention based programmes within their regions, with dedicated staff resources and involving relevant external stakeholders, and
2. **providing expert technical support** [in this case from the Clean Technology Centre [CTC], at Cork Institute of Technology [CIT]] to assist them in the development and implementation of these programmes.

In return, participating local authorities undertook ambitious programmes of work. The LAPD method is based on the Deming Quality Cycle for continuous improvement. One form of this may be represented as shown in the Figure below.



*The Continuous Improvement Cycle for Prevention*

## Participants Map



## Who is involved?

In total, 14 Local Authorities participated in the LAPD during the two phases of its implementation. In addition some 200 other organisations have also been involved.

The participating Local Authorities are listed in the Table below.

### LAPD PARTICIPANTS

Phase 1	Phase 2
Clare County Council	Cork County Council
Galway City Council	Donegal County Council
Galway County Council	Dun Laoghaire - Rathdown County Council
Kerry County Council	Longford County Council
Limerick City Council	Roscommon County Council
Limerick County Council	South Tipperary County Council
Monaghan County Council	Wicklow County Council



## Summary of Results

By undertaking audits, assessing improvement options, and implementing changes, a significant reduction in resource use was achieved. The data are presented in the table below.

Perhaps just as significant as the actual reductions was the number of organisations and individuals introduced to the prevention concept. As can be seen, several thousand people were reached – either through direct training or through attendance at events, and some 200 organisations were involved

### FAR –REACHING EFFECTS OF THE LAPD PROGRAMME

Item	Unit	Value
Direct Cost Savings	€/annum	>873,000
Waste prevented or Diverted	Tonnes/annum	>2,300
Water consumption Reduction	Tonnes/annum	>37,500
Energy reduction	kWh/annum	>1,530,000
Businesses	Number involved	121
Public Authority Premises	Number involved	14
Public Authority Staff	Number involved	27
Households	Number involved	45
Schools	Number involved	28
Audits	Number undertaken	295
Attendees at events	Number	>2,500

### CAPACITY BUILDING STATISTICS

Full-time people working on prevention:	6 + 2 CTC full-time equivalents
Part-time people working on prevention:	5
Formally trained (HETAC Course):	26

## PUBLICATIONS

<b>Farm Guide (Monaghan) (also Longford addition)</b>	Farming the Environment
<b>Pub Guide (Monaghan)</b>	Calling Time on Waste – a prevention guide for publicans
<b>Business Guide (Galway)</b>	Changing Behaviour – Saving Resources
<b>5 x e-guides (Limerick, Clare, Kerry)</b>	e-Guide to Waste Prevention e-Guide to Paper Prevention Effective Construction Waste Management Effective Waste Management in Urban Developments Effective Management of Shopping Centre Waste
<b>Audit Tool (Galway)</b>	3 x Synthesis Reports

## CONFERENCES/EVENTS

Two national conferences have been organised. These allow participants to disseminate their results to other local authorities and interested parties.

In addition, ten plenary meetings have allowed network members to share experiences, develop interactions, and to build capacity via presentations and workshops from outside experts and groups.



## WEBSITES

Two websites have been developed. These can be viewed at [www.ctc-cork.ie/lapd](http://www.ctc-cork.ie/lapd), and [www.localprevention.ie](http://www.localprevention.ie) (alternative link: [www.lapn.ie](http://www.lapn.ie))

## FORMAL TRAINING

An eight-day training course has been developed and delivered by the Clean Technology Centre to 26 local authority and other staff. Under the LAPN a further 10 staff are being trained in 2010. The course is entitled 'Certified Training Course in Waste and Resource Use Prevention', and is accredited to HETAC Level 7 via Cork Institute of Technology.



## Phase 1 Programmes

Phase 1 of the LAPD was launched in July 2006. Some €1.2 million in financial assistance was made available to three ambitious programmes, involving seven local authorities.

### The 7 authorities were:

Clare County Council  
Galway City Council  
Galway County Council  
Kerry County Council  
Limerick County Council  
Limerick City Council  
Monaghan County Council

### The programmes chosen were:

- 'Galway Integrated Waste Prevention Programme - Saving Resources: Changing Behaviour' (Galway County and City)
- 'NIPP - New Integrated Prevention Programme: Local authorities tackling waste prevention in partnership with business sectors, academia and the public' (Limerick County and City, Clare and Kerry)
- 'Working together to prevent waste in County Monaghan' (Monaghan)

These are outlined in the following pages.



# Galway Integrated Waste Prevention Programme - Saving Resources: Changing Behaviour<sup>1</sup>



Comhairle Cathrach na Gaillimhe  
Galway City Council

## PARTICIPANTS

### Local Authorities

Galway County Council (lead)  
Galway City Council

### Other Participants

Galway-Mayo Institute of Technology  
Údarás na Gaeltachta  
Galway Chamber of Commerce

### Programme Initiatives

Public Sector (Galway County Council; Galway City Council; Udarás Na Gaeltachta)  
Greening Galway Business  
Community Initiative  
Audit Tool

## PUBLIC SECTOR INITIATIVE

The programme aimed to improve environmental management in a number of public organisations by looking at all utilities and environmental costs, and analysing where savings could be made, through developing prevention and conservation measures. Listed below are some of the initiatives undertaken:

### Public Sector Actions

- Improvements to waste management procedures, resulting in a reduction in the quantities of waste arising
- Establishment of green teams
- Establishment of energy management teams
- Water conservation programmes
- Establishment of an intranet site
- Training and awareness measures

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<sup>1</sup> Contact Details:

Sinéad Ní Mhainín, Galway County Council, Environment Section, Áras an Chontae, Prospect Hill, Galway.  
(091) 509302; snimhain@GalwayCoCo.ie

## BUSINESS SECTOR INITIATIVE

### Activities Focus

- Cleaner production and resource use efficiency.
- Waste prevention and, where appropriate, diversion from landfill.
- Training and awareness.
- Working with business organisations to implement best practice across the sector.

A mix of retail, hospitality, fish processing, printing and a 3rd level academic institution, participated and benefited from advice given by the Galway Waste Prevention Programme to improve their resource use efficiency.

### Results

- 20 businesses participated in the project
- Significant waste prevention and waste diversion and increased environmental awareness in the business community
- Companies received energy training from Sustainable Energy Ireland
- Significant energy savings achieved by participants
- Increased co-operation between private and public sector
- Guide to improving environmental performance in business published



## HOUSEHOLDS AND COMMUNITY INITIATIVE

### Activities Focus

The project aimed to build capacity amongst householders and increase the awareness of prevention. It consisted of:

- Waste, energy and water audits
- Waste and energy monitoring
- Survey analysis
- Information seminars and workshops
- Re-evaluation
- Follow up mentoring

The programme was facilitated locally by schools, community councils, local area co-operatives, and Tidy Towns groups.

## Conclusions

- Working directly with householders is labour intensive and resources may be better used in areas like the public and business sector where more waste can be prevented.
- National household environmental awareness campaigns should be continually supported, like Change and Power of One campaigns.
- Food waste is a particular issue that could be addressed within a national prevention programme.

## AUDIT TOOL INITIATIVE

An audit tool was developed specifically for householders. This consisted of a household audit spreadsheet which was divided into sections based on general household information:

- Waste
- Energy
- Water
- Results, recommendations and charts

## PROGRAMME PERFORMANCE INDICATORS

Key Performance Indicator	Result per annum
Total Financial savings	€270,000
Savings in public sector	€37,000
Savings in Business Sector	€201,000
Savings in Community Sector	€32,000
Total Waste Prevented	168 tonnes
Waste prevented from public sector	8 tonnes (8%)
Waste prevented from Business Sector	150 tonnes (15%)
Waste prevented from Community Sector	10 tonnes (13%)
Total Water Conserved	9,000 m <sup>3</sup>
Water conserved in public sector	1,000 m <sup>3</sup>
Water conserved in Business Sector	8,000 m <sup>3</sup>
Total Energy Saved	654,000 kWh
Energy saved in public sector	130,000 kWh
Energy saved in Business Sector	490,000 kWh
Energy saved in Community Sector	34,000 kWh



# NIPP - New Integrated Prevention Programme: Local authorities tackling waste prevention in partnership with business sectors, academia and the public <sup>2</sup>



## PARTICIPANTS

### Local Authorities

Limerick County Council (lead)  
Clare County Council  
Limerick City Council  
Kerry County Council  
Limerick, Clare, Kerry Regional Waste Management Office (LCK RWMO)

### Other Participants

University of Limerick  
John Sisk & Son Ltd.  
Shannon Town Centre Management Company  
Kerry Airport Plc.

## PROGRAMME INITIATIVES

- Paper Usage Reduction in-house at Limerick County Council, and in University of Limerick
- Waste Management at a new development in conjunction with SISK Building Contractors and Limerick City Council
- Wise Waste Management at the Sky Court Shopping Centre Shannon in conjunction with Clare County Council
- Development of a Waste Action Plan for Kerry Airport working with Kerry County Council.

## LIMERICK COUNTY COUNCIL

### Paper Use Reduction Initiative

The principal aim was to implement a programme to reduce A4 Office paper consumption by at least 20% across Limerick County Council and the University of Limerick.



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<sup>2</sup> Contact Details:

Pauline McDonagh, Limerick County Council, County Hall, Dooradoyle, Limerick .  
061 496000; pmcdonag@limerickcoco.ie

## Paper Use Reduction Actions

### University of Limerick

- A working team, made up of UL and local authority staff, was established. The UL staff were a mix of academic staff from a number of different faculties and who were members of the UL Environment Committee, as well as staff from the Facilities Management section.
- A post graduate researcher was taken to champion the project within UL.
- Baseline data for paper consumption for all of UL was gathered.
- Waste audits were conducted, to gather data and profile the type of paper being disposed of both in the recycling stream and in the general waste.

Within 3 months all shared printers and copiers managed by the campus IT Department were defaulted to print double-sided.

### Limerick County Council Offices (three separate administrative areas)

- A multi-disciplinary team was set up within the Council. This comprised a representative of each of the functional areas of the Council.
- The baseline data on paper purchasing were gathered.
- A series of waste audits were carried out so that data about paper consumption habits could be verified.
- The data emerging from the project was then used to assist the Council's IT department in developing a tender for the supply of a new print management service for County Hall and a new administrative centre.
- This new equipment defaults to print duplex and has the scan to email function.
- An extensive multi-media awareness campaign was conducted throughout the intervention period. The campaign included displays, electronic messaging, staff awareness and training sessions and competitions.



## LIMERICK CITY COUNCIL

### Construction and Household Waste Prevention Initiative

Two main elements were set out for this initiative,

- (i) at the construction stage of the development where it was hoped to introduce a programme to conserve materials, reuse products and prevent waste from being produced.
- (ii) to present householders occupying the new accommodation with a waste prevention tool kit. The aim of the kit was to assist the householders in minimising the amount of waste they produce.



The two elements of this proposal determined that the work was carried out in two distinct phases. Phase (i) involved the Savoy Development site in the heart of Limerick City. Sisk were under contract to Fordmount Developments Ltd, to construct a 100 bedroom hotel incorporating bar & leisure facilities, 95 residential apartments and 14 retail units on a site that fronted onto Henry Street, one of the busiest streets in Limerick City.

- Site visits each Friday
- 2 additional visits by CTC staff and LCK RWMO staff
- Running concurrently with the site visits was a body of research to ascertain trends in construction waste both locally and nationally.

A number of issues came to light:

- The waste management area located in the car park was very small, housing (in January 2008) 3 no 1100 litre wheeled bins. These were located in a refuse room with a solid wooden door.
- The only tenants who appeared to be presenting waste for recycling were the commercial tenants and this was left on the floor in clear recycling bags (Optibags); the proportion of recycling waste looked very small in comparison to landfill waste.
- The apartment tenants in Blocks B & C have a circuitous route to the refuse area.
- In January 2008 the bins required emptying three days a week and the on-site caretakers reported excessive waste over the week-ends.

An initial audit of all waste arisings was conducted with the assistance of CTC, the purpose of which was to gather baseline data on the character of waste arisings as well as of indicative weights.

## CLARE COUNTY COUNCIL

### Sky Court Shopping Centre Initiative (Shannon)

The management team at SkyCourt were keen participants in the LAPD project, as they recognised the significance of spiralling waste quantities and costs. As waste management facilities were shared by all tenants, and paid for as part of an overall service charge, there was a lack of unit waste data and responsibility for unit waste arisings at the outset of this project.



### Shopping Centre Initiative – Actions

- Meeting with a number of retailers at the shopping centre along with the Management Team to engage them in the process
- Detailed five day audit of all waste arisings at the centre by the individual units (including one of the 3 supermarkets)
- Generation of a customised report for each of the retailers
- Awareness session including newsletter
- Final waste audit
- Food retailer programme with 12 food retailers
- Meetings to continue engagement
- Specific waste prevention initiatives by individual tenants on supply chain packaging and disposable food packaging.
- Capacity building for management and facilities staff, improved skills for managing segregated waste.
- New waste management clauses in tenancy agreements



## KERRY COUNTY COUNCIL

### Initiative to Develop a Waste Action Plan for Kerry Airport

An increase in passengers had led to a growth in waste and more consumption of energy and water. In 2006 at Kerry Airport there was little if any segregation of waste on site with almost all waste generated being landfilled. The primary waste prevention targets were to reduce the amount of mixed waste generated as well as investigating prevention opportunities and introducing a conservation programme for both water and energy.

#### Activities

Baseline data gathering on three key areas:

- Current practice for waste management by airport, airline and sub-contractors operating at the airport
- Overall water & energy consumption and consumption patterns for the total site,
- The future direction for the airport as this would determine the feasibility of implementing change during LAPD.

At Kerry airport there are 50 staff employed directly by Kerry Airport PLC and there are a number of sub-contractors on site. These include:

- A company who lease the bar and restaurant in the passenger terminal
- Eight Hire Car companies
- Cleaning staff, public transport and private hackney staff, tour operators etc.

An initial project outcome was to get the sub-contractors and tenants to take responsibility for their own waste arisings. This spawned a number of prevention initiatives which were driven by a desire to reduce waste management costs. Capacity building had an enormous impact on the overall environmental management of the airport. Initiatives included:

- The banning of “free” newspapers on internal flights since over 95% of these were never used and went straight to the recycling bin
- On-board segregation of waste by airline staff to reduce landfill waste
- Leak detection and water restriction to reduce overall consumption
- An energy conservation programme to reduce consumption, particularly during quiet operational hours.



## LCK PROGRAMME KEY PERFORMANCE INDICATORS

Key Performance Indicators (Overall)	Result (per annum)
Total Financial savings	€92,000
Total Waste Prevented and Diverted from Landfill	29 tonnes
Total Water Conserved	2,600 m <sup>3</sup>
Total Energy Saved	100,000 kWh

Key Performance Indicator - specific	2006	2008/9	Organisation
Sheets of paper consumed per staff member in LCC	8157	6967	Limerick County Council
Average no of sheets of paper consumer per full time student in UL	2460	1536	University of Limerick
Cost of waste/Cost of Construction of Savoy x100		0.45	Sisk Building Contractors
Waste cost per 100 m <sup>2</sup> of construction of Savoy Development		€802	Sisk Building Contractors
kg of waste per footfall at SkyCourt	0.18	0.11	SkyCourt Shopping Centre
Percentage of mixed waste presented	74	26	SkyCourt Shopping Centre
Percentage of organic waste diverted to compost	0	15	SkyCourt Shopping Centre
kg of waste per passenger	0.27	0.15	Kerry Airport
Litres of water per passenger		8.7	Kerry Airport
kWh per passenger		1.39	Kerry Airport

# Working together to prevent waste in County Monaghan <sup>3</sup>



## PARTICIPANTS

### Local Authority

Monaghan County Council

### Other Participants

Monaghan Leisure Centre  
Health Service Executive  
Irish Farmers Association (IFA)

### Programme Initiatives

Public Sector  
Greening Monaghan Business  
Agriculture Sector  
Schools Programme  
Households

## PUBLIC SECTOR INITIATIVE

### Monaghan County Council

Within Monaghan County Council the following activities were undertaken.

- In the Corporate Headquarters improvements were made to waste management procedures which resulted in 50% less waste going to landfill.
- An energy training programme was undertaken by twelve staff members with the assistance of Sustainable Energy Ireland, resulting in savings to date of €33,000. This was achieved through the following:
  - Elimination of electricity MIC and Wattless penalties
  - Changes to the motor (variable speed) on the gas flare at Scotch Corner landfill
  - Energy savings in Ballybay Waste Water Treatment Plant through changes to timings on aeration system
- The LAPD team worked with Monaghan Leisure Centre to ensure that the facility is operated to highest possible environmental standards. Waste management, energy and water were looked at as areas of improvement. In 2007 a waste segregation system was established in the facility.

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<sup>3</sup> Contact Details:

Nial O'Connor, Monaghan County Council, The Glen, Monaghan  
047 30500; noconnor@monaghancoco.ie



## HEALTH SERVICE EXECUTIVE

The LAPD worked with three HSE facilities within Monaghan County. Pre-intervention each facility had a different level of environmental performance. Post intervention each facility had improved its environmental performance and demonstrated that a preventative approach to environmental management pays.

Successes of the project include:

- Waste prevention at source, particularly food waste through an improved food ordering system from wards.
- Reduction in waste classified as risk waste through proper identification and segregation.
- Increased waste diversion from landfill through better segregation.
- 225 employees of HSE received environmental training.
- Water conservation through leak detection and use of water conservation devices.



## BUSINESS INITIATIVE

A key objective of the North-East Waste Management Plan was to “Implement best waste management practices in the workplace with the emphasis on waste prevention” and to “Broaden the remit of environmental awareness to waste prevention and minimisation in the business sector”. Monaghan County Council has tried to meet these objectives by developing a prevention programme in businesses that focuses on the following:

- Cleaner production and resource use efficiency.
- Waste prevention and, where appropriate, diversion from landfill.
- Training and awareness.
- Working with business organisations to implement best practice across the sector.



The response from the business community in County Monaghan to prevention has been positive. A mix of manufacturing, service industry, hospitality and community run businesses have participated and benefitted from advice given by Monaghan County Council to improve their resource use efficiency. Successes of the project include:

- In total 35 businesses participated in the project.
- The 35 businesses included 18 pubs and 3 hotels who participated in a hospitality waste prevention programme.
- 3 community type businesses participated.
- Significant waste prevention and waste diversion was achieved.
- Increased environmental awareness in the business community.
- 12 companies received training from Sustainable Energy Authority of Ireland. Significant energy savings were achieved in these twelve companies.
- Increased co-operation between private and public sector.
- ‘Calling Time on Waste’ booklet distributed to 4600 publicans nationally.

## AGRICULTURE SECTOR

Monaghan County Council's LAPD team worked closely with the Irish Farmers Association (IFA) to recruit farmers to participate in the prevention programme. One of the primary objectives of this project was to research types and quantities of waste being produced on farms.

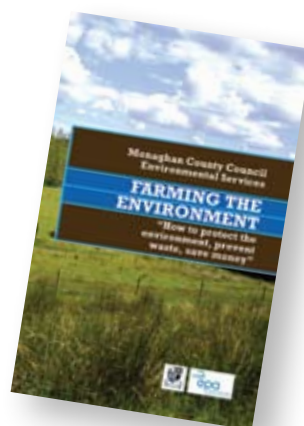
The LAPD discovered that whilst waste is not generally a problem for farmers, there are some issues of concern regarding storage and disposal of hazardous waste. Furthermore, it was discovered that there are significant savings to be made by farmers in energy conservation.

The farms that participated included:

- 2 Mushroom Farms
- 5 Dairy Farms
- 1 Poultry Farm
- 1 Integrated Piggery
- 1 Suckler Farm

Successes of the project include:

- Savings in energy conservation for participating farmers.
- Identification of hazardous wastes as an issue for farms.
- Greater co-operation between farming community and the Local Authority.
- Publication of 'Farming the Environment Booklet', 2,500 of which have been distributed around the country.



## SCHOOLS INITIATIVE

The objective of this initiative was to promote prevention as the most desirable form of waste management and to get schools to move beyond recycling. The main work undertaken included:

- Introduction of the concept of prevention and resource use into 28 schools.
- Delivery of prevention project competition in which over 700 students participated.
- Completion of 3 waste characterisation studies.

## PROJECT PERFORMANCE INDICATORS

Key Performance Indicator	Result
Total Financial savings	€510,000
Savings in public sector	€97,000
Savings in Business Sector	€377,000
Savings in Agriculture Sector	€36,000
Total Waste Prevented and Diverted from Landfill	2,080 tonnes
Waste prevented from public sector	80 tonnes (8%)
Waste prevented from Business Sector	2,000 tonnes (15%)
Total Water Conserved	26,000 m <sup>3</sup>
Water conserved in public sector	14,000 m <sup>3</sup>
Water conserved in Business Sector	12,000 m <sup>3</sup>
Total Energy Saved	876,000 kWh
Energy saved in public sector	58,000 kWh
Energy saved in Business Sector	618,000 kWh
Energy saved in Agriculture Sector	200,000 kWh



## Phase 2 Programmes

Phase 2 of the LAPD was launched in January 2007. Financial assistance was made available to seven projects, involving seven local authorities. The participating local authorities were:

Cork County Council  
Donegal County Council  
Dun Laoghaire / Rathdown County Council  
Roscommon County Council  
Longford County Council  
South Tipperary County Council  
Wicklow County Council.

# Waste prevention at Local Authority operated swimming pools in Co. Cork <sup>4</sup>



## Local Authority

Cork County Council

## Initiative

Cork County Council implemented a waste prevention and environmental awareness training initiative at Cork County Council owned swimming pools. The target audience included pool users, predominantly school children, and also the Council's staff working at these locations. The three participating pools were Fermoy and Mallow in North Cork, and Dunmanway in West Cork.

## Actions

Solid waste prevention, energy & water conservation measures were investigated and implemented, mainly in Mallow & Fermoy.

Improvements in environmental awareness amongst staff and pool customers, in particular students, were achieved in Dunmanway.

## Results

### Mallow pool

- Significant savings were made on water usage, and recycling & solid waste prevention steps were implemented. A 7 % reduction in solid waste per swim was achieved [13 g/swim].
- Energy audits identified short, medium and long term improvements - the short and medium term improvements are being implemented. A benchmark of 14.66 kWh/customer/year was calculated.
- Total energy consumption was reduced by 83,544 kWh.



### Fermoy Pool

- Total energy consumption was reduced by 278,140 kWh (by switching to geothermal).
- Considerable water savings were achieved. Weekly water meter reading introduced greater control on water – with a faster reaction time to elevated usage. The sand filters were changed and are now operating more efficiently.
- Recycling & solid waste prevention steps were implemented, leading to reductions in 2008 from 9.6 to 5.8 g/ swim.
- Like Mallow, energy audits identified short, medium and long term improvements to be made - the short and medium improvements currently being implemented.
- Fermoy pool had a geothermal pump installed during this period. Energy rating for the building has improved from D1 to C2.
- A benchmark of 11.69 kWh/customer/year was calculated.
- Due to the installation of the geothermal pump, the effectiveness of energy conservation alone cannot be reported separately.

### Dunmanway pool

Audited for both waste and energy. The pool achieved a C2 energy rating. Best practice is being implemented for water conservation and solid waste management allowing for the age of the pool. Lessons learnt from the project should be used in the new Dunmanway pool.

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<sup>4</sup> Contact Details:

Dr. Mary Stack, Cork County Council, Iniscarra, Co. Cork  
021 30500; Mary.Stack@CorkCoCo.ie

## Glan Thoraí <sup>5</sup>



### Local Authority

Donegal County Council

### Other Participants

Comharchumann Thoraí Teo (Tory Co-Op)

### Initiative

Waste prevention on Tory Island

### Activities Focus

The initiative took place on Tory island, 11 km off the north Donegal coast. The project included:

- A waste prevention and minimisation awareness campaign for businesses & householders:
  - Waste amounts and character generated on the island were assessed in audits at the start and end of the project.
  - Awareness activities including: a programme launch night, an Environmental Awareness and Sustainability questionnaire for householders, a school competition for logo, leaflet delivered to all households with waste awareness and minimisation information.
  - The club and the hotel have each bought a glass crusher. The crushed glass is stockpiled on the island for use as a building aggregate substitute.
  - Other measures introduced: home composting units distributed and a talk on composting, introduction of mixed dry recyclable collection, domestic glass & can bring banks, and an amnesty period for bulky waste collection.
- Measures to promote water use minimisation, including provision of rainwater collection system for the hotel.
- Involvement of Donegal County Council's Energy Officer and a related project on a feasibility assessment of renewable energy sources for the island.

### Results

- Collected household residual waste has fallen from an average of 23.5 kg per household per week (summer - July 07) and 18.3 kg per household per week (winter - Nov 07) to 9.8 kg per household per week (Sept 09). This is a 58% drop in residual waste.
- While not strictly prevention, the results for the sole business (social club) audited in September 2009 illustrate that the glass crusher is being utilised, rather than glass being shipped in the residual waste to the mainland for landfill. The glass content in the weekly residual waste for the social club has dropped by 99% (41.6 kg per week Nov 07 to 0.44 kg per week Sept 09). Thus somewhere between 2 to 5 tonnes of waste glass is diverted for reuse.



Before



After

<sup>5</sup> Contact Details:

Contact details: David Friel, Donegal County Council, Letterkenny Public Services Centre, Neil T. Blaney Road, Letterkenny, Co. Donegal  
074 919 4200; david.friel@donegalcoco.ie



# Food Waste Prevention at Dundrum Town Centre <sup>6</sup>



## Local Authorities

Dun Laoghaire County Council

## Other Participants

Dundrum Town Centre, Dublin

## Initiatives

Assess the wastes, especially those from the food producing units, produced in the centre.  
Identify areas for preventative improvement in the generation and subsequent management of wastes.

## Activities

- A 5 day survey of the wastes generated in the centre was carried out. During this audit 16 tonnes of mixed wastes were monitored.
- Wastes were attributed to individual units and this was used to identify the major waste producers.

## Results

- Based on the work of the LAPD team a new contract with a waste management company was drawn up. This had, at its core, a determination to reduce wastes removed from the centre through improved segregation and prevention through education of the staff in the main food serving areas.
- Based on the contracts that exist between the centre and the individual units, there is no incentive to reduce waste volumes. The major waste producer was identified during the waste audits and, based on this experience, the centre management aim to change their contract terms to ensure that waste costs are not based on a flat fee, but rather on volume – thereby creating an incentive for individual units to reduce their wastes at source.
- Based on audit findings improved signage and staff education took place.
- A number of internal pilot improvements were made and these were to be rolled out at the project end. These include waste segregation training programmes as part of staff induction, the use of graphics and multi-lingual text on waste management signage, and ongoing monitoring and rejection of non-complying recyclable bags.



<sup>6</sup> Margaret Coles, Dun Laoghaire – Rathdown County Council, County Hall  
Marine Rd, Dun Laoghaire, Co. Dublin  
01 2054700; mcoles@DLRCOCO.IE

# Waste Prevention on Farms <sup>7</sup>



## Local Authority

Longford County Council

## Other Participants

Local Farms  
Teagasc  
Irish Farm Film producers group  
Farm Relief Services

## Programme Initiatives

Environmental assessment of farms in County Longford, in the areas of waste, water and energy.  
On site training of farmers on waste prevention: energy, solid waste and water.  
Generation of environmental benchmarks for farms.

Production of an environmental guidance booklet for farms, which was distributed to all the farmers in County Longford. The booklet has some very practical tips and hints, so other farmers can also easily achieve reductions in waste, water and energy costs.

## Activities

- Carried out detailed environmental audits on four farms in Longford.
- Carried out waste characterisation studies on farm waste.
- Compiled monthly data on stock numbers, water consumption, waste production and energy consumption in order to generate environmental benchmark data for Irish farms.
- Provided on site training to farmers involved.
- Provided environmental training to farmers at Teagasc training events.
- Compiled Booklet on Farm Waste Prevention in conjunction with Monaghan County Council.

## Results

- Increased environmental awareness of farms directly involved in the project and raised national awareness through publication of 'Farm Waste Booklet' and publicity surrounding this.
- Increased environmental awareness by Teagasc and a commitment to raise environmental issues in training courses delivered by them.
- Production of environmental benchmarks for Irish beef farm and Irish dairy farm for energy consumed per animal, water consumed per animal, and waste produced and landfilled per animal.
- Reduced landfill waste on participating farms by 50%.



<sup>5</sup> Contact details: Gary Brady, Longford County Council,  
Longford Local Authorities, Great Water St., Longford, Co. Longford  
043-334623; gbrady@longfordcoco.ie

# Developing a Waste Prevention Programme in Roscommon County Council Workplaces<sup>8</sup>



## Local Authority

Roscommon County Council

## Activities Focus

The project looked to identify and implement preventive initiatives for waste, water and energy for internal Roscommon County Council (RCC) activities.

## The project included:

- Waste reduction: waste audit results at the project start were used to generate visual metrics such as kg/day per department; kg per employee per department; waste composition and recycling rates. Offices, library and arts centre were included in the waste reduction aspect.
- Consumables: Single/double sided printing by department tracked and analysed. Costs of printer cartridges by type and department tracked. Large quantities of single use envelopes used internally were identified.
- Water conservation: a review to identify water saving opportunities in buildings.
- Energy reduction: electricity accounts analysed; meter tracking and EMAP implementation; green team out of hours surveys; awareness campaign to reduce out of hours energy usage; green electricity procurement evaluated.
- A green team was established and used to identify projects in each of the above areas and assist with those implemented. Management commitment was made. Green zone intranet established. Staff survey carried out.

## Results

- Waste: A binless system for desks was introduced across all offices and the library, together with segregated bin stations. The various measures resulted in a drop from 46 tonnes of waste generated per annum to 40 tonnes of waste per annum. A shift from 21% recycling & reuse to 83% recycling & reuse was also achieved; paperless river catchment surveys implemented.
- Consumables: Switched to recycled paper; purchased and implemented internal envelopes; implemented an electronic database for tracking printer consumables.
- Energy: review of the 20 largest electricity accounts (all in water services) – identified potential savings in charges of €36,000 avoidable wattless and MIC charges. Offices: timer switches for copiers and vending machines.
- RCC are in the process of implementing some more of the recommendations identified.



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<sup>8</sup> Contact details: Suzanne Dempsey, Roscommon County Council, Roscommon County Council, The Courthouse, Roscommon, County Roscommon 090-6637100; sdempsey@roscommoncoco.ie

# Cashel Waste Prevention Project <sup>9</sup>



## Local Authority

South Tipperary County Council

## Other Participants

Cashel Chamber of Commerce

## Activities Focus

The project involved a waste prevention study with retailers on Main Street, Cashel. The aim of the project was to identify ways of reducing waste generation, energy & water consumption and communicate waste prevention measures to selected businesses in Cashel town.

## The project included:

Establishment of a Waste Prevention Team within South Tipperary County Council to work on the Cashel Waste Prevention Project.

Recruitment of businesses (56 businesses approached; nine businesses took part in the programme).

In total 13 waste audits and 18 energy audits were performed.

Through the duration of the project, each business was visited an estimated 12 – 15 times by a project team member.

## Outcomes included:

- All participating businesses reporting reductions in energy use after implementing recommendations from their energy audit reports.
- A water conservation awareness campaign including a water awareness website by the Water Services Section of South Tipperary County Council.
- A quick Environmental Audit sheet to assist similar small businesses to tread lighter on the environment and make financial savings.

Overall, the nine businesses involved have changed their practices in terms of waste and energy management. Significantly, many of them have stated that they will think about energy performance and waste issues when procuring any new products or services for their businesses and homes.

South Tipperary County Council “Five Minute Environmental Review for Businesses”  
9 Case studies from Cashel businesses.



<sup>9</sup> Marie Phelan, South Tipperary County Council, South Tipperary County Council, County Hall, Clonmel, Co. Tipperary  
052 6134398; marie.grant@southtippercoco.ie

# Convenience Waste - Tackling Waste Prevention - An Integrated Retailer-Consumer Approach <sup>10</sup>



## Local Authority

Wicklow County Council

## Other Participants

Topaz (Statoil) Service Station, Bray

## Programme Initiatives

Assess the wastes associated with modern convenience shopping – this is often referred to as dashboard dining.

Reduce the wastes generated and improve the resource efficiency of the participating garage.



## Activities

- A number of waste audits were performed at the participating Topaz garage. These identified areas for improvement in waste management as well as prevention options.
- Assessment of the water use on site. This garage has a large car wash and uses significant quantities of water at times.
- Assessment of the main types of packaging materials used in the garage.
- Survey of public attitudes to packaging waste.
- Evaluation of energy use on site and the identification of areas for improvement.

## Results

- After the first waste audit it was found that large quantities of recyclable waste were going to landfill (60%). A comprehensive segregation system is now in place with 2/3 of all waste now being diverted (newspapers and cardboard were identified as significant issues).
- An initial survey of water consumption led to a 13% saving in water use. This equates to 40m<sup>3</sup> per month (500m<sup>3</sup> per year). A more efficient car wash was installed during the programme which recycled water – called cascading of water.
- During the initial waste audit a walk-through identified a number of energy improvement savings – especially in the compressed air system. While no formal programme has been established, some informal policies regarding lighting have been applied.
- A thorough and comprehensive examination of the input materials purchased by the petrol station was performed. This was used to identify areas for change and, ultimately waste reduction at source, for the garage. The recommendations made have been presented to the garage.

<sup>10</sup> Moira Byrne, Wicklow County Council,  
The Murrrough Environmental Centre, Wicklow  
Phone 0404 64120

# Certified Training Course in Waste and Resource Use Prevention



The course, established in 2007, is funded under the EPA National Waste Prevention Programme. As of 2010 it is in its 4th iteration with 35 people having been trained or currently undergoing training. The 8-day course is HETAC Level 7 approved through the Cork Institute of Technology (CIT), and has been developed by and is delivered by CIT's Clean Technology Centre (CTC). While primarily aimed at local authority staff, it is also open to other public administration employees. To date, the profile of attendees is as follows:

- Local Authorities
- EPA
- HSE
- ESB
- Údarás na Gaelteachta

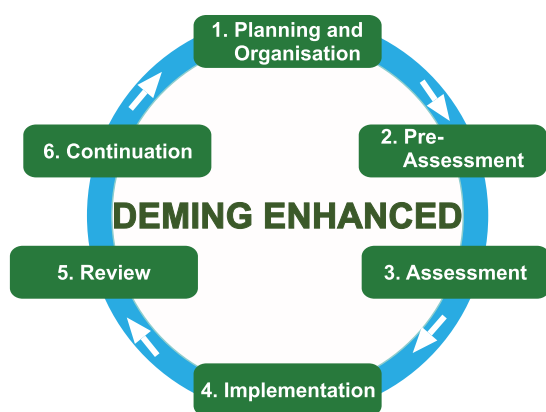
The course covers a wide variety of topics which provide both the practical and theoretical skills to implement prevention programmes. The course also includes a prevention based project, which is completed in the participant's work place where learning can be applied in practice.

Some of the key topics covered include:

- The evolution of prevention
- Legislation and its importance to prevention
- Environmental economics
- Resource use assessments (materials, waste, water and energy)
- Prevention techniques
- Option generation, creativity, and problem solving
- Innovation and co-design
- Networking and social capital
- Hazardous waste identification and management

All prevention is based on the Deming Quality Circle, and this improvement cycle has been expanded and tailored, to form the foundation of the CTC prevention methodology and the Training course.

## How the Course relates to the Deming Circle



The Continuous Improvement Cycle for Prevention (based on Deming Circle)





The local authorities participating in LAPD applied an advance form of this improvement cycle to implement a range of projects. The methodology used is illustrated below.



## Continuing the success:

### The Local Authority Prevention Network (LAPN)

The Local Authority Prevention Network (LAPN) is a key component in continuing to build capacity in local authorities for the promotion of resource efficiency and waste prevention at a local and grassroots level. Over the last 4 years, the Local Authority Prevention Demonstration programme has shown that implementing waste prevention and resource efficiencies in an organisation can lead to significant savings, in addition to the obvious environmental benefits.

Currently, 12 local authorities from across the country are receiving financial and technical support from the EPA and are using the experience and case studies generated by the LAPD Programme to implement further waste prevention initiatives.

In many instances, local authority staff have been seconded to work specifically on prevention projects. This has developed capacity in local authorities, so that their staff can in turn enable local organisations (including their own) to prevent waste.

#### LOCAL AUTHORITY PARTICIPANTS IN LAPN PROJECTS

Local Authority	Project Area
Carlow / Kilkenny	Hazardous waste + small business
Cavan	Green Fleadh Cheoil ('Events' and 'Food')
Clare	Cliffs of Moher ('Events' and 'Food')
Cork	Small business; networking
Galway County and Galway City	Small business; networking
Kerry	Dingle (eco-label); Killarney National Park ('Events' and 'Food')
Limerick city	Thomond Park ('Events' and 'Food')
Limerick county	Healthcare; special Olympics ('Events')
Monaghan	Healthcare; Food waste
Wicklow	Catering food waste

The LAPN is establishing working groups to share experience and to build up expertise. The initial working groups are the 'Food Waste' and 'Events' WGs. Other WGs are planned.

## Notes



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### Contact Details

Clean Technology Centre,  
Cork Institute of Technology,  
Rossa Avenue,  
Cork,  
Ireland.  
**Tel:** +353 21 4344864  
**Email:** [ctc.cork@cit.ie](mailto:ctc.cork@cit.ie)  
**Website:** [www.ctc-cork.ie](http://www.ctc-cork.ie)



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