

Results from the Cleaner Greener Production Programme

Summary Phase 2



Environmental Protection Agency

The Environmental Protection Agency (EPA) is a statutory body responsible for protecting the environment in Ireland. We regulate and police activities that might otherwise cause pollution. We ensure there is solid information on environmental trends so that necessary actions are taken. Our priorities are protecting the Irish environment and ensuring that development is sustainable.

The EPA is an independent public body established in July 1993 under the Environmental Protection Agency Act, 1992. Its sponsor in Government is the Department of the Environment, Heritage and Local Government.

OUR RESPONSIBILITIES

LICENSING

We license the following to ensure that their emissions do not endanger human health or harm the environment:

- waste facilities (e.g., landfills, incinerators, waste transfer stations);
- large scale industrial activities (e.g., pharmaceutical manufacturing, cement manufacturing, power plants);
- intensive agriculture;
- the contained use and controlled release of Genetically Modified Organisms (GMOs);
- large petrol storage facilities.

NATIONAL ENVIRONMENTAL ENFORCEMENT

- Conducting over 2,000 audits and inspections of EPA licensed facilities every year.
- Overseeing local authorities' environmental protection responsibilities in the areas of - air, noise, waste, waste-water and water quality.
- Working with local authorities and the Gardaí to stamp out illegal waste activity by co-ordinating a national enforcement network, targeting offenders, conducting investigations and overseeing remediation.
- Prosecuting those who flout environmental law and damage the environment as a result of their actions.

MONITORING, ANALYSING AND REPORTING ON THE ENVIRONMENT

- Monitoring air quality and the quality of rivers, lakes, tidal waters and ground waters; measuring water levels and river flows.
- Independent reporting to inform decision making by national and local government.

REGULATING IRELAND'S GREENHOUSE GAS EMISSIONS

- Quantifying Ireland's emissions of greenhouse gases in the context of our Kyoto commitments.
- Implementing the Emissions Trading Directive, involving over 100 companies who are major generators of carbon dioxide in Ireland.

ENVIRONMENTAL RESEARCH AND DEVELOPMENT

- Co-ordinating research on environmental issues (including air and water quality, climate change, biodiversity, environmental technologies).

STRATEGIC ENVIRONMENTAL ASSESSMENT

- Assessing the impact of plans and programmes on the Irish environment (such as waste management and development plans).

ENVIRONMENTAL PLANNING, EDUCATION AND GUIDANCE

- Providing guidance to the public and to industry on various environmental topics (including licence applications, waste prevention and environmental regulations).
- Generating greater environmental awareness (through environmental television programmes and primary and secondary schools' resource packs).

PROACTIVE WASTE MANAGEMENT

- Promoting waste prevention and minimisation projects through the co-ordination of the National Waste Prevention Programme, including input into the implementation of Producer Responsibility Initiatives.
- Enforcing Regulations such as Waste Electrical and Electronic Equipment (WEEE) and Restriction of Hazardous Substances (RoHS) and substances that deplete the ozone layer.
- Developing a National Hazardous Waste Management Plan to prevent and manage hazardous waste.

MANAGEMENT AND STRUCTURE OF THE EPA

The organisation is managed by a full time Board, consisting of a Director General and four Directors.

The work of the EPA is carried out across four offices:

- Office of Climate, Licensing and Resource Use
- Office of Environmental Enforcement
- Office of Environmental Assessment
- Office of Communications and Corporate Services

The EPA is assisted by an Advisory Committee of twelve members who meet several times a year to discuss issues of concern and offer advice to the Board.

Environmental RTDI Programme 2000 – 2006

Results from the Cleaner Greener Production Programme Summary Phase 2

ENVIRONMENTAL PROTECTION AGENCY

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Acknowledgements

This report has been prepared as part of the Environmental Research Technological Development and Innovation Programme under the Productive Sector Operational Programme 2000–2006. The programme was financed by the Irish Government under the National Development Plan 2000–2006. The EPA research programme for the period 2007–2013 is entitled Science, Technology, Research and Innovation for the Environment (STRIVE). These programmes are administered on behalf of the Department of the Environment, Heritage and Local Government by the Environmental Protection Agency which has the statutory function of co-ordinating and promoting environmental research.

The personnel involved in the production and preparation of this report were Dermot Cunningham, Eileen O’Leary and Colman McCarthy, Clean Technology Centre (CTC) CIT, Dr. Brian Donlon and Lisa Sheils (EPA).

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Cleaner Production

The Cleaner Production Section of the Environmental RTDI Programme addresses the need for research in Ireland to inform policymakers and other stakeholders on a range of questions in this area. The reports in this series are intended as contributions to the necessary debate on cleaner production and the environment.

ENVIRONMENTAL RTDI PROGRAMME 2000–2006

Published by the Environmental Protection Agency, Ireland

PRINTED ON RECYCLED PAPER



Foreword

The Environmental Protection Agency initiated the Cleaner Greener Production Programme (CGPP) in 2001 as a grant scheme to encourage Irish organisations to implement cleaner greener practices. The philosophy of the programme is that prevention is better than cure. The projects challenged organisations to produce goods and services in more environmentally friendly ways, targeting the minimisation of emissions through cleaner production methods. The objective was to achieve a balance between economic activity and protection of the environment. To date fifty-nine organisations have received part funding for demonstration projects under this programme over 3 phases. There is a developing demand for environmentally sound products and services both in the EU and across international markets and indeed, environmental performance is fast becoming a marketing tool.

In this brochure, we aim to demonstrate what has been achieved under Phase 2 of the Cleaner Greener Production Programme. Twenty-two projects were successfully completed and EPA is happy to have been able to support these success stories. Many of the participant organisations to date have found that not only are they being 'environmentally friendly' but have enhanced competitiveness and improved efficiency compared to prior work practices - providing real examples of "win-win" scenarios.

We hope that other businesses will learn from and build on these success stories and that we will work towards CGPP's tagline objective: "Better Business in a Better Ireland".

Mary Kelly

Director General

Overview

Phase 2 of the Cleaner Greener Production Programme (CGPP) took place over a 24 month period between 2005 and 2007. It built on the success of CGPP Phase 1, and the results have clearly demonstrated that Cleaner Greener Production brings both environmental and economic benefits.

Under Phase 2 of the CGPP 22 organisations or groups were funded. In total, more than 150 organisations were involved in the programme (due to the networking nature of some of the projects, and partnerships in others). This means that more than 150 organisations have been introduced to the cleaner production concept.

Significant improvements, both environmental and economic have been made. These are summarised below:

Output Savings

Emissions to Water (tonnes per annum)	2,800
Wastewater (tonnes per annum)	103,687
Greenhouse Gases (tonnes per annum)	3,512
Solid Waste (tonnes per annum)	1,543
Cost savings per annum:	€488,000

Input Savings

Water (m ³ per annum)	117,528
Energy (kWh per annum)	662,900
Packaging (tonnes per annum)	348
Material inputs (tonnes per annum)	6,500
Cost savings per annum:	€1,132,746

Total Impact of CGPP2 projects

- 250,000 tonnes per annum reduction in input and output streams
- 660 MWh per annum energy reduction
- €1.6 million cost savings per annum

The overall EPA Financial commitments to the CGPP2 participating organisations, was approximately €1m.

Highlights and Lessons

Products Were Redesigned

Schiedel Chimney Systems	Schiedel redesigned their chimney product to reduce packaging waste and gained other advantages, such as a range of cleaner production activities.
Connaught Electronics Ltd. (CEL)	CEL used lean green principles and a holistic approach to design. Their eco-designed car security device has a reduced environmental footprint and saves the company money.
True Temper	True Temper introduced boron and lowered carbon content of their shovels. This resulted in a better shovel with less energy use in production and the elimination of quench oil.
MicroPro Computers Ltd (Multimedia Computer Systems Ltd)	MicroPro have designed an Irish Eco-computer which is a revolutionary concept. It uses more benign materials, is easier to repair, and is more energy efficient than a conventional computer.

Organisations Worked Together

Limerick/Clare/Kerry Waste Management Office	9 mentor companies worked with 60 SMEs to achieve environmental benefits. The expertise passed on will form the basis for ongoing similar activities.
South East Lean Forum	3 companies used lean production principles, value stream mapping and 6-sigma techniques to effect large cost savings and reduced environmental impact.
Irish Hospitality Institute	40 core hotels were trained, undertook Cleaner Production (CP) assessments, and carried out projects – resulting in significant environmental improvements and cost savings.

Local Authorities Participated

Limerick/Clare/Kerry Waste Management Office	The 4 member local authorities facilitated and promoted the Green Mentoring initiative in their regions.
Westmeath County Council	A Civic Amenity site was constructed in Mullingar, using recycled construction materials, and incorporating wind and solar energy. The project is explained and promoted to the public at the site via publicity and promotional materials.

Sometimes the solutions are surprising

Galco Steel Ltd.	Galco set out to undertake a recycling and concentration project for their spent pickle liquor. They ended up deciding to change the type of process from caustic to acid degreasing – resulting in better operation and reduced environmental impact.
Pfizer Ireland Pharmaceuticals	Pfizer started out to use recycled methanol in their low temperature cooling system. They decided instead to reduce or eliminate cooling system losses – resulting in significant savings and reduced waste.

And sometimes the projects go just as expected

Diageo Great Northern Brewery	Based on successful pilot trials by another company (FDT) in CGPP Phase 1, a plant scale membrane system was designed, installed, commissioned, and made fully operational. Spent caustic from the Cleaning System is now recovered.
Micam Ltd	Micam installed a closed loop etchant system in their PCB production process saving raw material inputs and waste.
Irish Finishing Technologies	IFT reduced the concentration of chemicals in their plating baths, leading to reduced water use, reduced sludge and waste water. A chromium III process has also been implemented and is replacing some of their chromium VI process.
PWA International	An aircraft engine casing overhaul facility, PWA replaced their clean line open tanks with closed loop washing machines. This saved water, energy, chemicals and reduced effluent.

Projects can consist of many small actions - with big savings

Atlanfish	A number of small process improvements led to savings in both financial and environmental terms. Suppliers were also taught to take back poor materials.
FMC BioPolymer	A comprehensive review and a series of detailed process changes resulted in very significant reductions in water use and waste water production – leading to significant savings.
Arramara Teoranta	A detailed feasibility study identified a range of modifications – resulting in a radical new process being identified.

Potential for Cleaner Greener Production



Past...



Present...



Future...

Adapted from the presentation of Professor James Clarke, University of York at the EPA Environmental Technology Workshop May 2007

What Exactly is Cleaner Greener Production?

Cleaner Greener Production Is...

the application of integrated preventive environmental strategies to processes, products and services to increase overall efficiency and reduce risks to humans and the environment, for example:

- **Production processes:** conserving raw materials and energy, eliminating toxic raw materials and reducing the quantity and toxicity of all emissions and wastes
- **Products:** reducing negative impacts along the life cycle of a product, from raw materials extraction to its ultimate disposal
- **Services:** Encouraging and supporting the development of higher environmental performance in the service sector, by incorporating environmental concerns into designing and delivering services.

Cleaner Greener Production Requires...

new attitudes, better environmental management and evaluating available technology options. We need to take good environmental practice to the stage where it is an inherent part of any business operation.

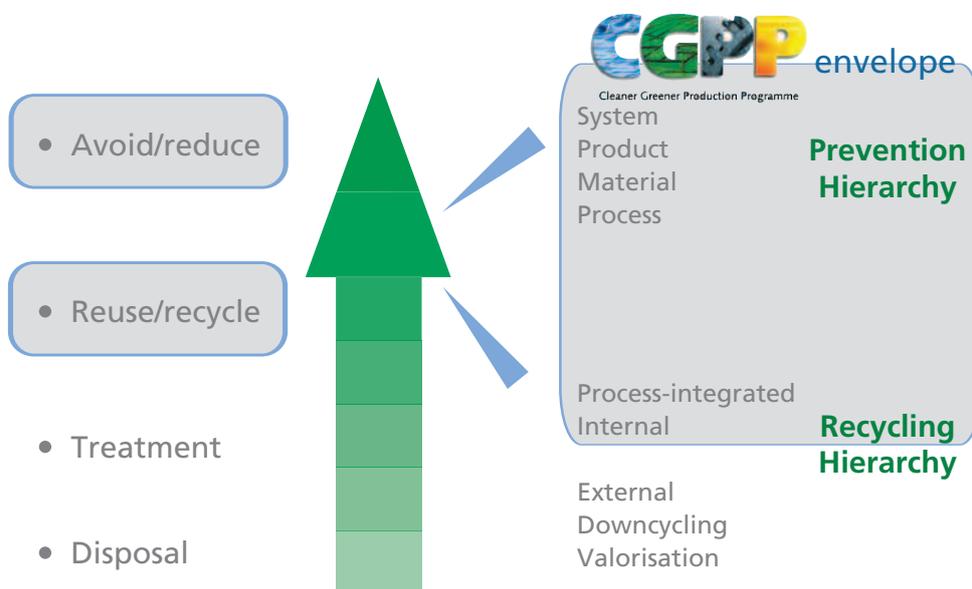
Possible Types of CGPP Projects

The Waste Management Hierarchy is well known and widely used. However, not all projects which might relate to this hierarchy fit into the CGPP prevention ethos. CGPP aims to promote projects which **PREVENT** waste arising and **REDUCE** resource use.

Within the Waste Management Hierarchy, two other hierarchies, of interest to CGPP, arise. These are the Prevention Hierarchy and the Reuse/Recycle Hierarchy. All of the former falls within the CGPP framework, however only two elements of the latter actually fall within the CGPP framework. This framework is referred to as the **CGPP Envelope**.

The projects funded under CGPP2 fall within the CGPP Envelope.

Waste Management Hierarchy



Project Types

CGPP projects are not only process oriented. They include:

- projects on processes
- projects on products
- projects on training
- projects on systems
- projects on services.

Organisation Types

The types of organisation which may undertake CGPP projects also varies. For example, in CGPP Phase 2 the following organisation types were involved:

- single private companies
- single local authorities
- groups of companies
- groups of local authorities
- local authorities and companies combined.

Environmental Effects

Much of the current thinking on environmental protection focuses on what to do with wastes and emissions after they have been created. The goal of cleaner, greener production is to avoid generating pollution in the first place. CGPP2 participants effected positive environmental changes in the following areas:

- water use reduction
- energy use reduction
- packaging reduction
- raw materials reduction
- reduced emissions to air
- reduced emissions to water
- reduced quantities of wastewater
- reduced solid waste production
- reduced greenhouse gas emissions
- decreased toxicity of wastes and emissions.

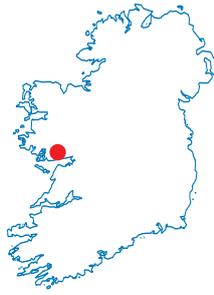
Project Impacts

Areas of Reduction

		INPUTS				OUTPUTS				
		Water	Energy	Packaging	Material inputs	Emissions to air	Emissions to water	Waste water	Greenhouse gases	Solid waste
Arramara Teoranta	Environmental review of seaweed meal production and exploration of alternative technologies		●			●			●	
Atlanfish	Moving towards a more sustainable fish industry	●						●	●	●
Connaught Electronics Ltd	Resource savings in operations through lean green principles				●				●	
Diageo Great Northern Brewery	Spent caustic recovery plant	●	●		●		●	●	●	
FMC BioPolymer	Zero Effluent Stretch Target (ZEST)	●	●				●			
Galco Steel Ltd	Recovery of hydrochloric acid and ferric chloride from spent pickle acid				●					●
Irish Finishing Technologies	The optimisation of electroplating activities	●			●		●	●		●
Irish Hospitality Institute	Greening Irish Hotels	●	●						●	●
Limerick/Clare/Kerry Regional Waste Management Office	B2B Green Mentor Programme	●	●	●						●
Micam Ltd	Closed Loop regeneration and recycling of copper etchant used in printed circuit board manufacture				●	●	●			●
Millipore Ireland	Towards sustainable production - closing water and solvent cycles				●		●	●		
MicroPro Computers Ltd (Multimedia Computer Systems Ltd)	Prototype development of guaranteed Irish Zero waste personal computer project (ZWPCP)		●		●				●	●
Pfizer Ireland Pharmaceuticals	Investigate feasibility of recovery of methanol from production for reuse in the cooling loop				●		●			●
PWA International	Clean line resource conservation project	●	●		●			●	●	●
Schiedel Chimney Systems	Redesign of Schiedel Chimney Systems to reduce packaging waste		●	●	●				●	●
Ship Company Ltd	Energy efficient system for zero waste transport and zero rinse water emission						●	●		
South East Lean Forum	Clean Lean Manufacturing Programme	●	●		●			●	●	●
Specialised Metals Ltd/IET	Closed Loop system for cleaner production in recovery of metal values from electronic scrap in support of the WEEE Directive				●					●
Sturdy Products Limited	More efficient and profitable production by the elimination of imported packaging material. Heat conversion programme		●	●	●				●	●
True Temper	Manufacture of solid socket shovels and spades using boron steel		●		●	●			●	●
Westmeath County Council	The use of recycled/reusable materials in the construction of environmental infrastructure in the midlands		●		●	●			●	
Wexford Creamery Ltd	Reduction in milk solids content in wastewater to effluent plant	●					●	●		

CGPP2004/1

Environmental review of seaweed meal production at Arramara Teoranta and exploration of alternative cleaner seaweed drying technologies



*Arramara Teoranta,
Cill Chiaráin, Conamara, Co. na Gaillimhe*



Arramara Teoranta is a semi-state body with Údarás na Gaeltachta (Irish Government), holding 100% of company shares since 2006. At present it is the only sizeable primary seaweed drying/processing company remaining in Ireland and thus provides valuable employment to some 2-300 seaweed harvesters in coastal communities of the mid western seaboard. Annual turnover is in the region of €3 million.

This project set out to review the existing environmental performance of Arramara Teoranta at their Kilkieran facility, and as a priority to investigate cleaner efficient seaweed drying technologies to replace the current coal slack-fuelled process.

The entire factory building was modernised to allow for installation of new production dewatering and drying equipment.

Alternative drying technologies using lower temperature will achieve energy savings and most importantly will improve nutritional quality of seaweed meal.



Seaweed harvesting

CGPP2004/2

Moving towards a more sustainable fish industry



*Atlanfish,
Station House, Malin Road, Carndonagh, Co. Donegal*



Atlanfish Ltd. is a leading processor of Irish seafood products based in Carndonagh, Co. Donegal. The CGPP project at Atlanfish aimed to study and monitor the consumption of natural resources and implement process improvements to reduce waste.

During the project a production management system was implemented to monitor the generation of waste through the production process. Through the auditing of the information generated by the production management system, and studies of water and energy use throughout the process, a number of process improvements were implemented.

Other changes were made to the purchasing system to encourage fishermen to return underweight or sub-standard material back to the sea and re-use rejected material as bait.

These improvements have resulted in:

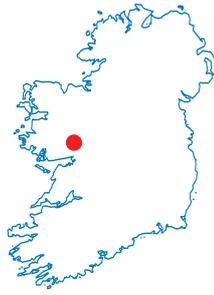
- 26% water usage reduction
- 2% product wastage reduction
- over €11,000 per annum savings
- over €150,000 per annum increased sales.



New high pressure washer system

CGPP2004/3

Resource saving in microwave sensor production through lean green principles



Connaught Electronics Ltd. (CEL),
Tuam, Co Galway



CEL has a world class manufacturing facility in Tuam, Co. Galway and has recently established a manufacturing base in the Czech Republic. The team at CEL design and manufacture a range of products including: camera systems for automotive applications including reversing, Automotive Remote Keyless Entry (RKE) transmitters and receivers, general automotive body electronic products, air conditioning controllers and motion sensor products for automotive security and safety.

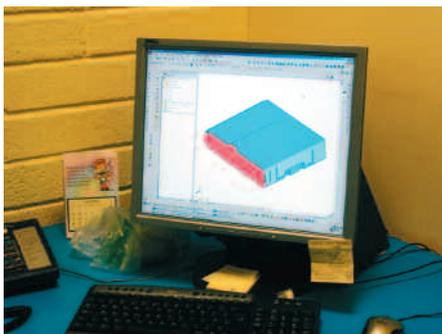
CEL focused on improving the environmental performance of a product and production line by taking a holistic view of the process.

An objective was to train designers in Eco-Design and apply the principles to a new product. The company designed a smaller 'microwave sensor' unit with comparable functionality, which uses less power consumption during its life cycle.

This resulted in a product which is in excess of:

- 30% lighter
- 30% less volume
- Energy savings of 30% due to the eco-design.

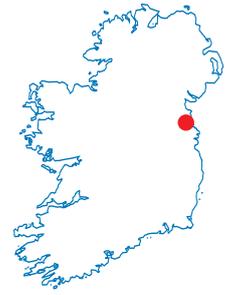
In the production process there were significant improvements in product yield and production efficiency which improved resource utilisation. Production efficiency improvements of 75% were achieved by undertaking investment in some equipment to remove the bottleneck in the process, undertaking takt time analysis and implementing 6 Sigma continuous improvement methods.



Microwave housing design

CGPP2004/4

Spent caustic recovery plant for reusing caustic solutions



Diageo,
Carrick Road, Dundalk, Co. Louth

DIAGEO

The Diageo brewery is located in Dundalk town. The brewery currently employs 60 permanent staff and a number of contract staff. The brewery brews Harp, Carlsberg, Satzenbrau, Kaliber, McArdles and Smithwicks. The brewery keg Smirnoff Ice, Harp, Carlsberg, Smithwicks and McArdles.

The goal of this project was to install a production scale membrane filtration plant for the purposes of recovering spent caustic for reuse in the plant.

The recovery plant, incorporating nanofiltration membrane technology was successfully installed and is currently operational in the brewery.

A dirty caustic solution from the regeneration of a brewing filter aid (PVPP) that was previously put to drain is now recovered in the membrane plant and reused again in PVPP regeneration.

A Volume Concentration Factor (VCF) of 10 is being consistently achieved which translates into a caustic recovery rate of 90%.

Benefits that have resulted include:

- Savings of 30,000 litres of fresh caustic per year
- Savings of 129 tonnes of steam per year for heating caustic
- Savings of 15,000 litres of acid for pH balancing in the effluent treatment plant.

Annual net savings generated by the membrane filtration plant amount to over €34,000 per annum.



Membrane filtration plant

CGPP2004/5

Zero Effluent Stretch Target (ZEST)



FMC BioPolymer,
Wallingstown, Little Island, Cork



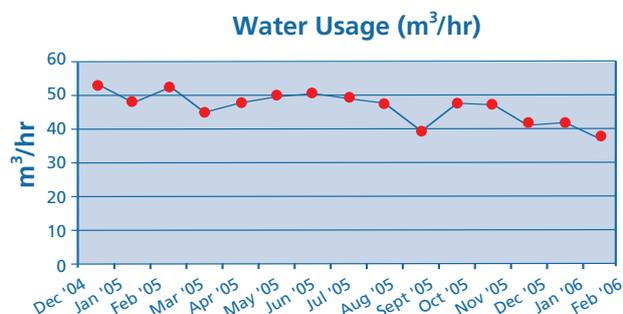
FMC BioPolymer manufactures several grades of microcrystalline cellulose (tradename Avicel PH) for use in pharmaceutical manufacturing. The Cork operation is part of a US multinational specialising in chemical manufacturing with headquarters in Philadelphia.

This project, initiated in November 2004, is concerned with the critical examination of water usage at FMC BioPolymer in Cork. It set out to maximise the internal recycle of water by characterising the process streams, seeking consistent optimal operation, and applying recovery measures as appropriate to the streams.

The overall impact on site water usage since the beginning of the project, as can be seen with reference to the figure below, is a water reduction of 30%. The projects that have been fully implemented are a scrubber water recycle, a cooling water recycle, an atomiser water recycle and a water balance.

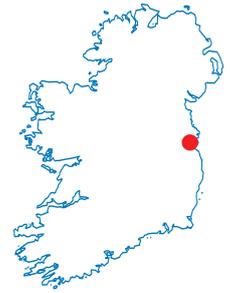
These projects do not account for 30% of the water usage, however. An increase in awareness on site of the value of water has led to a different approach to water usage.

Leaks are being repaired and hoses are not left running; these are only two examples of a wiser approach to water usage.



CGPP2004/6

Spent pickle acid recovery and reuse



Galco Steel Ltd.,
Ballymount Road, Walkinstown, Dublin 12



Galco Steel Ltd. is the largest Hot Dip Galvanizer in Ireland, with plants located in Dublin, Cork and Waterford.

This project originally aimed to investigate the feasibility of a recovery process to recover and reuse hydrochloric acid and produce a concentrated ferric chloride solution more suited for use in the water treatment process in Ireland. However as a result of the extensive investigations undertaken by Galco as part of this project, an alternative solution has been implemented. Increased analysis of spent pickle made Galco more aware of the chemistry of their process and they are now moving to implement simpler solutions which will improve the quality of their spent pickle.

These include:

- Implementation of acid degreasing, replacing the current caustic degreasing system, giving reduced sludge and better pickling efficiency
- Pickling at a higher temperature giving lower acid solution with a higher iron content (increase energy use compensated by reduced energy use in degreasing step)
- Addition of iron oxide to the spent pickle in a controlled reaction to boost the iron content and reduce the acid content of the pickle

In Galco's new plant, zinc will be practically eliminated from the spent pickle through the design of the plant equipment and layout.

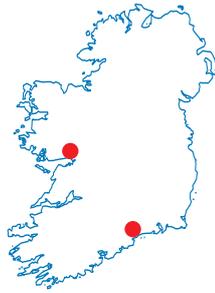
This is a classic case of cleaner production - i.e. do not create a waste stream in the first place.



The Pickle tank at the Walkinstown Plant

CGPP2004/7

The optimisation of electroplating activities



*Irish Finishing Technologies,
35 – 39 Ballybane Industrial Estate, Galway*

*Waterford Plating Ltd.,
605-606, Northern Industrial Estate, Waterford.*

Irish Finishing Technologies Ltd **Waterford Plating Ltd**

Irish Finishing Technologies Ltd (IFT) is a sub-contract treatment facility located in the west of Ireland. Founded in 1998, the premises consist of a custom built 17000 square ft facility. The following services are provided; anodizing, rack cyanide zinc plating, barrel acid zinc plating, chromate conversion coating and stainless steel passivation.

Formed in 1991, Waterford Plating Company Ltd (WPL) is one of the leading sub-contract surface treatment facilities in Ireland. Waterford Plating Company Ltd consists of an 8000 square ft. facility in the heart of the city's industrial area.

The project involved achieving reduced zinc and cyanide concentrations in the electroplating baths without impacting on the quality of the product produced at the Galway site of Irish Finishing Technologies Ltd. and its sister site Waterford Plating Ltd.

The key benefits were a reduction in metal hydroxide sludge generation and a reduction in water use. The generation of the hydroxide sludge, which is a hazardous waste, has been reduced by 40% at the Galway site. Water use has been reduced by 40%, saving over 200 litres per round produced or approx. 2800m³ per annum for IFT (comparing the first quarter of 2005 and 2006).

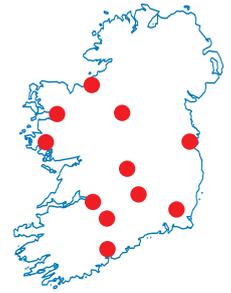
An additional bonus of the lower bath concentration is reduced metal usage with the same product performance.



Some typical plated product

CGPP2004/8

Development of a CP Programme for the Irish Hotel Industry - Greening Irish Hotels



*The Irish Hospitality Institute,
8 Herbert Lane, Dublin 2*



The Irish Hospitality Institute (formerly Irish Hotel and Catering Institute) was founded in 1966 as the professional body for managers in the hotel, tourism and catering industries in Ireland.

The project aim was to develop and introduce a Cleaner Production Programme for Irish Hotels, incorporating Cleaner Production (CP) audits, identification of CP opportunities and assistance with development of CP programmes.

56 hotels were engaged in more than 20 counties. Hotels involved in the programme included 3, 4 and 5 star hotels with size ranging from 30 to 255 bedrooms. These hotels represented c.10 % of Irish hotel room stock. 23 training sessions / workshops were held with over 600 person training sessions delivered.

40 Environmental Reviews were carried out and Cleaner Production Plans created.

Environmental Management principles were introduced to in excess of 3,000 employees. **Best practice standards were identified, and the Irish Hotel Industry was environmentally benchmarked for the first time.**

Quantifiable environmental achievements included 1,113 tonnes of waste diverted from landfill and 3,000+ tonnes of CO₂ output reduced by the end of 2006.

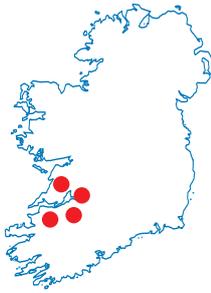
The programme also identified future industry opportunities for energy savings, waste & water savings, and CO₂ reductions.



Speakers at the Greening Irish Hotels National Conference

CGPP2004/9

B2B Green Mentor Programme (Business-to-Business Green Mentor Programme for Waste Prevention)



Limerick / Clare / Kerry Regional Waste Management Office,
Dooradoyle, Co Limerick



Limerick / Clare / Kerry Regional Waste Management Office

The Green Mentor Programme was established by Limerick/Clare/Kerry Regional Waste Management Office. The role of the Regional Waste Management Office includes co-ordinating, in partnership with the 4 member local authorities, the implementation of the Regional Waste Management Plan's objectives which are in accordance with National and EU policy.

The B2B Green Mentor Programme encouraged larger good practice companies to provide guidance on waste prevention, in particular to small to medium enterprises (SMEs). Programme activities included a visit by SMEs to a host company for talks and plant tour, followed by individual guidance.

9 Green Mentor companies were involved, and 60 SMEs companies were mentored. In many cases, immediate environmental and economic improvements were achieved.

Significant progress was made in a number of companies with waste reduction initiatives resulting in direct savings or reduced supplier base, as one supplier became both supplier and recycler for one commodity.

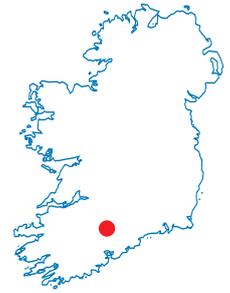
The Limerick/Clare/Kerry Region plans to continue with the now established Programme, which has potential to be replicated by other bodies on a local, regional or national basis.



Group of Green Mentors who were awarded Certificates of Acknowledgement

CGPP2004/10

Closed loop regeneration and recycling of copper etchant used in printed circuit board manufacture



MICAM Ltd.,
Sean Moylan Park, Mallow, Co. Cork

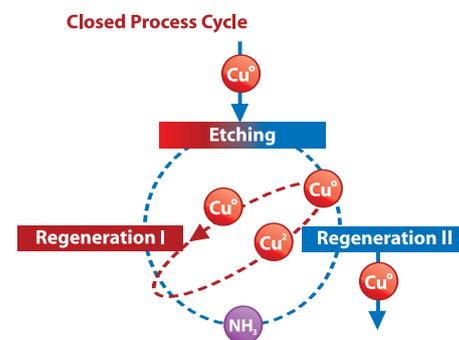


Micam Ltd was established in 1966 and commenced operations in Mallow, Co. Cork in 1967 producing industrial laminates, copper clad materials and woven glass products. In 1994 Micam commenced the production of printed circuit boards and in 1995 the product range was extended to include laminated tubes.

This project sought to prevent the generation of waste etchant at Micam by utilising the Elo-Chem closed loop copper etchant regeneration system which allows continuous regeneration of etchant and the subsequent recovery of high purity copper for sale.

The successful implementation of the project has resulted in the following environmental and cost savings:

- 99.6% reduction in hazardous waste etchant produced
- 82% reduction in Ammonia discharge to sewer
- 31.5% reduction in Ammonia emission to air
- 25.5% reduction in Copper discharge to sewer
- 30% reduction in etching operation process costs after sale of recovered copper



Schematic of the closed loop copper etchant regeneration system

CGPP2004/11

Towards sustainable production - closing water and solvent cycles at Millipore



Millipore,
Tullagreen, Carrigtwohill, Co. Cork



Millipore has established its operations in Ireland since 1987. The initial phase of the plant manufactured water purification systems and filtration devices. A 1989 expansion of the existing manufacturing facility and the construction of a membrane casting plant was followed by a further expansion in 1998 -1999 to introduce a Hi-flow membrane manufacturing process.

The original objective of this project was to implement membrane technology to recover solvents and ultra pure water, from specific process streams for reuse in production.

These technologies were found not to be feasible due to either economic or technical constraints. Therefore, the approach of the project was changed to focus on elimination of the solvent from the wastewater through process improvement. Prevention at source was implemented through the use of wiper blades to prevent solvent carry-over to the next step in the process.

A wiper system was designed and trials were carried out that proved positive and therefore the focus of the project changed from internal recovery to prevention.

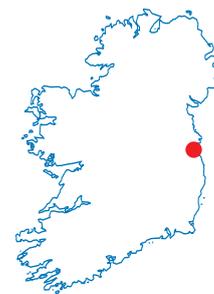
More work will be carried out with regard to the impact of the wiper on membrane quality as well as whether consistent running can be achieved using this system.



Pilot ultrafiltration rig

CGPP2004/12

Zero Waste Personal Computer (ZWPC) Project



MicroPro Computers (Multimedia Computer Systems Ltd),
98 Nutgrove Avenue, Rathfarnham, Co. Dublin



Multimedia Computer Systems Ltd. (MicroPro Computers) is a wholly Irish-owned SME employing 22 staff. The company manufactures and retails its own range of computer systems, software packages, networking and peripherals.

MicroPro has designed and manufactured a zero-waste, high-specification PC. **iameco pC** is the product of a year-long R&D effort, aimed at upgrading the already significantly environmental MicroPro XPc into the first PC system to meet the stringent requirements of the European Eco-Label for Computers. The iameco prototype is undergoing the series of technical tests that will allow accreditation as Europe's 1st genuine Green Computer.

The PC uses only reusable components, can be dismantled by a single worker in 11 minutes, is energy-efficient, and free of hazardous materials such as brominated flame retardants, PVCs and heavy metals like lead, cadmium and mercury that have been regularly used in computer manufacture for years.

The PC housing is manufactured from recycled aluminium. No plastic is used in the computer housing. The parts and components have been carefully selected to meet EU requirements and to minimise electricity consumption, electromagnetic emissions and noise.



iameco pC

CGPP2004/13

Investigation into the reuse of Methanol/MTBE waste in the low temperature cooling system



*Pfizer Ireland Pharmaceutical,
Little Island, Co. Cork*



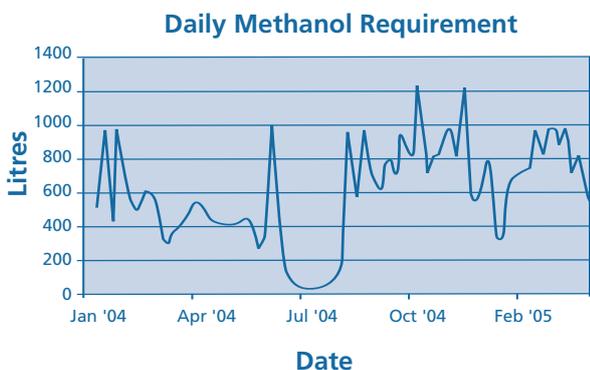
Little Island Active Pharmaceutical Ingredient Plant started production as Plaistow Limited in 1978 and has since manufactured a wide variety of products. In 1997 Lipitor® was launched and, because of its success, a large expansion programme began at both the Little Island and Loughbeg sites.

The original aim of this project was to investigate reuse of waste methanol/MTBE instead of fresh methanol to maintain system concentration in the reactor jackets that are used to heat and cool the reactors.

The project found there would be no detrimental effects to production or the safe operation of the plant by reusing the methanol/MTBE waste in the low temperature cooling system. Payback would be in less than three years.

The focus of the project then moved to identify why there was a continual need to top up the low temperature cooling medium in the system. Prior to this study it was believed that dilution losses were an inevitable operating cost associated with a system of this type. This belief has been challenged and further studies will now be carried out on the jacket services.

Measures (such as density meters) have been put in place to reduce the methanol requirement. The potential exists to remove 245,350 litres of food grade methanol each year from the system.



Historical methanol requirement – daily additions to the low temperature cooling system

CGPP2004/14

Clean Line Resource Conservation



*PWA International,
Naas Road, Rathcoole, Co. Dublin*



PWA International is based on the Naas Road, Rathcoole, Co. Dublin. The company employs 150 staff and is involved in the over-haul and repair of aircraft engine cases for large commercial airlines. Engine cases are sent to PWA from around the world, for assessment service and repair.

Previously, aircraft engine cases were prepared/cleaned in a clean line featuring a number of open 6000 litre tanks, containing chemical cleaning agents and rinse water. These tanks were non-insulated and needed to be maintained at temperatures of 80°C. The tanks were emptied periodically and the contents disposed of as hazardous waste.

The CGPP project which was completed involved removing a number of the cleanline tanks and replacing the tanks with two closed loop washing machines.

The main advantages of the washing machines were a reduction in water consumption, reduction in gas usage as the tanks no longer need to be heated, reduction in the quantity of chemical used and a reduction in the quantity of hazardous waste being shipped off-site for treatment.

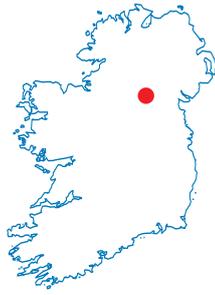
The quantity of hazardous waste from the cleanline has reduced by 17% from 2005 to 2006, even though 2006 was an extremely busy year for PWA!



Existing clean line open tanks and New clean line washing machines

CGPP2004/15

Redesign of Schiedel Chimney Systems to reduce packaging waste



Schiedel,
Kingscourt Road, Carrickmacross, Co. Monaghan



Schiedel's core business is the production of Chimney Systems. The Schiedel Swift chimney system is a versatile product that was developed to suit the open fire and central heating requirements of the UK and Irish markets.

This project involved the redesign of chimney systems to produce a factory assembled 'Storey High' product rather than supplying the chimney system in component kit form.

The new system eliminates packaging since it is transported to site in re-useable metal cradles, replacing the pallets and plastic wrapping of the existing system.

The new system is factory assembled which increases the quality and accuracy of construction and reduces the amount of materials needed per unit.

The new system also results in a reduction in chimney installation times for builders.

In June 2006 Schiedel Carrickmacross came joint top out of 25 plants within the Schiedel group in the area of safety and environmental awareness. This was achieved in spite of the Carrickmacross plant being much older than most of the other plants which are located across Europe.

Up to 16,000 wooden pallets, 16,000 plastic hoods, 18,000 metres of insulation, and 750 kg of sealer is now saved per annum.

Total savings to the Company - €258,000 per annum.



Existing system - Typical waste from one Schiedel Swift System and new system being dispatched in custom metal cradles which are reused

CGPP2004/16

Clean & Lean manufacturing network



Waterford Chamber of Commerce,
No. 2, Georges St. Waterford



Lake Region

The Clean & Lean Project was undertaken by a group of three companies within the South East Lean Forum (SELF). Carten Controls Ltd. is recognised as a global leader in the design and manufacture of ultra high purity gas valves and system components for the semiconductor industry.

Frentech Engineering Ltd. is a privately owned, Irish company producing a range of precision metal fabricated components, assemblies and full solutions for the Information Technology, Medical and Process sectors.

Lake Region Manufacturing Ireland, is a wholly-owned subsidiary of an American company, manufacturing minimally invasive medical devices.

The primary aim of the project was to investigate whether cleaner production can be achieved through the application of Lean principles and whether an analytical tool can be developed to highlight areas of most benefit.

Between them, the 3 companies saved more than €170,000.

Also, each of the companies experienced very considerable cooperation and buy-in at each level of the organisation because the lean improvement effort was clearly focused on a "common enemy" and was not seen as threatening to job security.



Creating a value stream map

CGPP2004/17

More efficient and profitable production by elimination of imported packaging material & improved heat conversion



*Sturdy Products Ltd.,
Blessington Industrial Est, Blessington, Co. Wicklow*



Sturdy Products Ltd. is unique in the rotational moulding field in Ireland. The company concentrates to a greater extent on larger mouldings and is capable of moulding products up to 4 metres in length. The company also manufactures plastic tanks up to 6000 litres in capacity as well as over 100 different products.

In this project the supply of Sturdy Products primary raw material - polyethylene powder - was moved from being in disposable 20 kg bags to 1,000 kg reusable bulk containers.

Mechanical handling systems were put in place to deal with the larger containers and the mixing process was partially automated.

The company also installed a heat recovery system where waste heat from the rotational moulding manufacturing process is collected and used to preheat the office central heating water.

The successful implementation of the project has resulted in the following annual savings:

- 45,000 disposable bags eliminated from solid waste stream
- Switching to bulk supply saved €16,000 in raw material costs
- Annual labour time savings of €3,430
- Eliminated waste disposal costs of €2,000.



Original mixing tank set up and the new bulk handling system and mixing tank

CGPP2004/18

Manufacture of solid socket shovels and spades using boron steel



*True Temper Ltd.,
White's Cross, Cork*



True Temper Limited is a wholly owned subsidiary of Ames True Temper, Camp Hill, Pa., the leading lawn & garden tool business in the U.S. The primary products are spades, shovels, forks, rakes, scrapers and other cultivators for lawn and garden, agricultural and contractor use. The company's solid socket shovel mill is the only solid forged mill in the corporation.

The aim of the project was to switch the type of raw material used to manufacture shovels and spades from carbon steel to boron steel. The low carbon content of this steel in contrast to the steel presently used would enable it to be quenched in water rather than oil. This would allow the elimination of quench oil and substitute it with a closed loop water quench, and would also eliminate the need for a tempering oven with its associated energy use.

It is estimated that a substantial net savings per annum could be realised by removing the existing heat treatment system, through the reduction of labour and variable overhead costs, energy costs, waste disposal costs and maintenance and environmental compliance/monitoring costs.

The project was successfully developed and piloted. However it was decided at a corporate level not to proceed with the plant scale implementation of the project.



Existing process – going from oil quench (RHS) into tempering oven (LHS)

CGPP2004/19

The use of recycled/reusable materials in the construction of environmental infrastructure in the Midlands



*Westmeath County Council,
County Building, Mount Street, Mullingar,
Co. Westmeath*



Westmeath County Council

This project consists of the construction of a civic amenity facility on the outskirts of Mullingar, where the public can, for a small fee, bring their recyclables to the facility. The facility has been constructed using recycled crushed concrete in the sub-base and capping layers. Recycled asphalt planings has also been used in the surfacing layer. In terms of renewable energy resources, a wind turbine system has been erected at the southeast corner of the site to provide power to the electrical sockets and lights in the administration building. Also, a solar thermal heating system has been fitted to the roof of the administration building, which provides hot water to the building. Furthermore, the binder course of the tarmacadam contains recycled asphalt planings and the landscaped areas contain crumb rubber.

- Approximately 4,200m³ of recycled crushed concrete has been incorporated into the construction of the project as opposed to using the traditional quarried aggregates
- Approximately 24m³ of recycled asphalt planings were incorporated into the tarmacadam binder course
- Approximately 24 tonnes of crumb rubber was used as part of the landscaping.



Road construction using recycled materials; wind turbine; site signage

CGPP2004/20

Reduction in milk solids in waste to effluent treatment plant



*Wexford Creamery,
Rocklands, Wexford*



Wexford Creamery Ltd. was established in 1963. It is 80% owned by DairyCrest and 20% by Wexford Milk Producers. The plant which includes processing, storage and office accommodation, covers 10,000 sq. m. It is located one mile from Wexford and overlooks the horseshoe estuary of the Slaney river.

The company currently employs 100 people and is one of the most modern cheese plants in Europe.

Output consists of approx. 12,000 tonnes cheddar cheese per annum – almost entirely for the export market and upwards of 6,000 tonnes of whey concentrate which is sold to a dairy processor on the home market for further processing.

Milk usage exceeds 3000 gallons per day of liquid milk. Cream and buttermilk are also produced.

The main objective of this project was to reduce whey waste i.e. to minimise the COD and suspended solids content of wastewater prior to treatment in the effluent plant before release to the Slaney estuary.

Process modifications were made which resulted in the reduction in waste sludge derived from white whey. This former waste is now processed resulting in savings of ca. €26,000/annum.

The introduction of chlorine dioxide treatment as a biocidal agent for evaporative condensate which was previously a waste, meant that it is now used in cooling tower water makeup, milk tanker cleaning and as a diluent for chemicals in wastewater treatment as well as its already established use in evaporator cleaning (CIP).

CGPP2004/21

Energy efficient system for zero waste transport and zero rinse water emission



*Ship Company Ltd.,
Killarney Road, Macroom, Co.Cork*

Ship Company Limited



Ship Company specialises in the manufacture of small and medium volume Printed Circuit Boards (PCBs) in short times for the electronics industry. This includes Single sided, Double sided, Multilayer PCBs. Ship Company Ltd also provides a Prototype service to help customers design PCBs. Ship Company has been established for over 24 years in Macroom, Co Cork, and currently has 38 employees.

Prior to their CGPP project Ship Company had an etchant regeneration system installed on the copper etching process. This system allows etchant to be reused in a closed loop and recovers copper for sale. The focus of the CGPP project moved onto the rinse stream after the copper etching process. Ship Company proposed to investigate and pilot a rinse water reuse system to recover for re-use valuable materials lost to the rinse tanks. One of the technologies evaluated was Vapour Compression Distillation.

This project did not proceed on its original course. Some work was done to reduce ammonia usage and emissions. Design work on a rotating cathode for recovery of copper from rinse water was carried out.

CGPP2004/22

Closed loop system for cleaner production in recovery of metal values from electronic scrap in support of the WEEE Directive



*Specialised Metal,
Unit 17, Gorey Business Park, Gorey, Co Wexford (SML)*



*Inter-Euro Technology Ltd.,
Chapelstown, Carlow, Co. Carlow (IET)*



Collaboration between Specialised Metal Ltd. Based in Gorey and Inter-Euro Technology Ltd of Carlow.

Formed in 2001 Specialised Metal is a high value metal refining company. The company recovers gold from obsolete and non quality electronics. Separation processes facilitate reclamation of metals, high purity plastic and ceramic by-products, after onsite crushing to optimum particle sizes. Raw materials are comprised of processor chips, electronic gold plated connectors, and computer integrated circuits are all destructed onsite.

Inter-Euro Technology Ltd., is a service support company offering a specialised environmental service to electroplating and other surface treatment companies on minimisation of waste, recovery of valuable materials and treatment of effluents containing metals.

The project sought to recover gold and planned to recover other precious metals, including platinum group metals (PGMs) from electronic scrap.

Market conditions altered and a steady and sufficient supply of raw materials could not be sourced. The project changed direction and sought to use alternative raw materials. There have been no results to date.



Cleaner Greener Production Programme

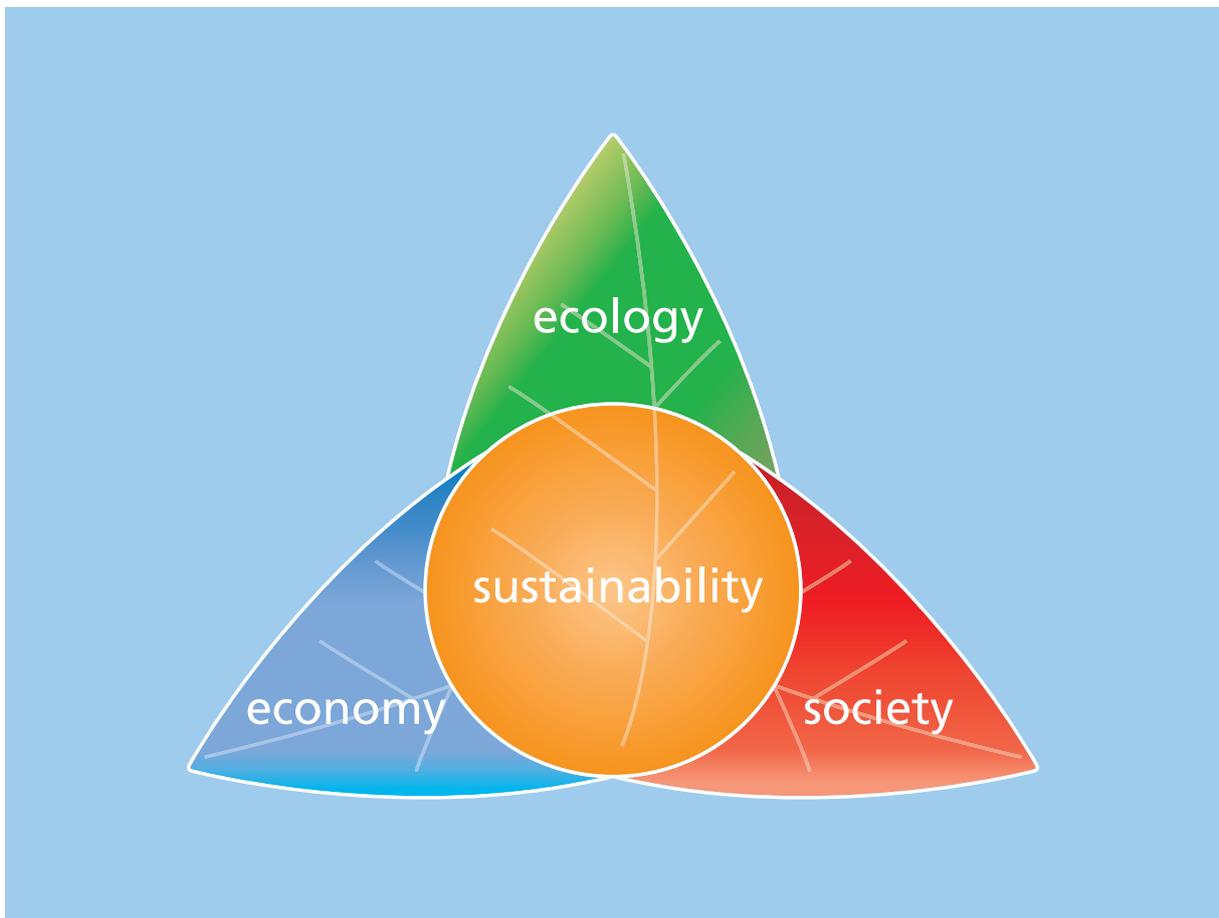
and the Three Pillars of Sustainable Development

All countries and economies need to grow. However, it is now recognised that economic growth cannot be unbridled, and that environmental and social factors must be given at least equal importance.

Thus, the majority of nations recognise the three pillars of sustainable development.

These are: economy, environment, and social equity, and they are intertwined, as illustrated below.

The Cleaner Greener Production Programme promotes these three essential pillars, and all of the projects funded demonstrate that it is indeed possible to encompass all three aspects. The table on the following pages shows how each of the projects performed with regard to the 3 pillars.



Code	Project Title	Participant	Sector Category	Cleaner Production Category
2004-CP2-Z	Environmental review of seaweed meal production at Arramara Teoranta and exploration of alternative cleaner seaweed drying technologies	Arramara Teoranta	Food - seaweed meal production	Energy efficiency, best operating practice
2004-CP2-K	Moving towards a more sustainable fish industry	Atlanfish	Fish processing	Best operating practice
2004-CP2-D	Resource savings in operations through lean green principles	Connaught Electronics Ltd	Electronics	Best operating practice
2004-CP2-AD	Spent caustic recovery plant	Diageo Great Northern Brewery	Food - brewing	Membrane process
2004-CP2-P	Zero Effluent Stretch Target (ZEST)	FMC BioPolymer	Chemical	Water recovery
2004-CP2-AV	Recovery of hydrochloric acid and ferric chloride from spent pickle acid	Galco Steel Ltd.	Metal - galvanising	Switching to acid degreasing, & adding iron oxide to make it amenable for water treatment Chemical recovery
2004-CP2-C	The optimisation of electroplating activities	Irish Finishing Technologies	Contract plating and metal finishing	Chemical recovery
2004-CP2-O	Development of a CP programme for the Irish Hotel Industry	Irish Hotel and Catering Federation	Hospitality	Sustainable network, good housekeeping, CP audit, training
2004-CP2-AF	B2B Green Mentor Programme	Limerick / Clare / Kerry Regional Waste Management Office	Local authority	Sustainable network
2004-CP2-G	Closed Loop regeneration and recycling of copper etchant used in printed circuit board manufacture	Micam Ltd	Electronics - printed circuit board manufacture	Metal recovery
2004-CP2-T	Towards sustainable production - closing water and solvent cycles	Millipore Ireland Ltd	Chemical	Chemical recovery
2004-CP2-AT	Prototype development of guaranteed Irish Zero waste personal computer project (ZWPCP)	MircoPro Computers Ltd (Multimedia Computer System Ltd)	Electronics	Eco label, improved technology
2004-CP2-Y	Investigate the feasibility of using methanol, currently being sent off site for incineration to be reused in the low temperature cooling loop on site	Pfizer Ireland Pharmaceuticals	Pharmaceutical	Chemical recovery
2004-CP2-AJ	Clean line and fluorescent penetrant inspection resource conservation project	PWA International	Electronics	Best operating practice
2004-CP2-AU	Redesign of Schiedel Chimney Systems to reduce packaging waste	Schiedel Chimney Systems	Construction products - chimney system packs	Waste recovery, improved technology
2004-CP2-AL	Energy efficient system for zero waste transport and zero rinse water emission	Ship Company Ltd	Electronics	Waste recovery, water recovery
2004-CP2-L	Clean Lean Manufacturing Programme	South East Lean Forum	Co 1: metal components, plating and paint treatment; Co 2: medical devices Co 3: gas valve manufacturer	Best operating practice
2004-CP2-AK	Closed loop system for cleaner production in recovery of metal values from electronic scrap in support of WEEE Directive	Specialised Metal Ltd/IET	Metal recovery / electronics	Metal recovery
2004-CP2-W	More efficient and profitable production by the elimination of imported packaging material. Heat conversion programme	Sturdy Products Limited	Plastic product manufacture	Energy efficiency, supply chain activities
2004-CP2-R	Manufacture of solid socket shovels and spades using boron steel	True Temper	Metal products manufacture	Waste recovery, improved technology
2004-CP2-AH	The use of recycled/reusable materials in the construction of environmental infrastructure in the Midlands	Westmeath County Council	Local authority	Waste recovery
2004-CP2-AI	Reduction in milk solids content in wastewater to effluent plant	Wexford Creamery Ltd	Food	Waste recovery

Three Pillars of Sustainable Development

Social

Economic

Environmental

Coal handling elimination

Cost reduction from use of renewable energy source

Small scale study to review alternative seaweed drying technologies Use coal now
Would investigate solar, wind, gas or possibly seaweed

Water use awareness raising in production
Protecting jobs in a highly competitive business

Cost savings resulting from efficiency improvements
Cost savings resulting from efficiency improvements

Reduce water energy and raw material usage

Automation of cleaning process frees up operator time

Savings from chemicals, energy and water reduction

Programme of measures - ecodesign, use of eco indicators, energy reduction; smart plastics; reduce scrap

Water use awareness raising in production
Reduced operator exposure: reduction in frequency of spent bath removal

Charged for water by m³ for usage and disposal
Reduced chemical and waste costs

Install membrane filtration plant to recover CIP caustic solutions

Redesign of the spray dryer scrubbers to reduce water consumption
Review of all effluent waste streams for treatment and recycling
Reduced hazardous waste, reusable waste product, reduced resource use

Less hazardous form of Cr has health benefits

Chemical cost savings; savings in water and waste

Reduce concentration of metals in plating tanks
Replace CrVI with CrIII. Reduced water and waste

Sharing of experiences in network

Save on landfill and energy costs

Focus on waste generation and energy consumption

Business to Business Mentoring. Host mentoring companies (8 companies) with 60 SMEs. Visits, seminars, projects and awards
Less employee exposure

Save on landfill and energy costs

Reduce waste and energy consumption

Process ownership by operators

Value of scrap metal has increased significantly; reduction in process costs
Chemical cost savings

Reduction in hazardous waste, ammonia emissions to air and sewer and in copper and silver

Will create employment in design, manufacturing, sales and support

Profit from sale of **iameco Pc** and associated support activities

Using membranes to recover solvents and water for reuse in the process

Reduced risk from eliminating waste transport

Chemical cost and waste disposal savings

Reduction of WEEE waste, design for disassembly and upgrade

Hazard waste elimination has health benefits easier to operate; less exposure (enclosed rather than open tanks)
Easier and faster on-site installation

Reduced chemical, water and energy use gives reduced costs

Reduced coolant losses and reduced resource use

Reduced employee exposure

Cost savings on packaging reduction and raw materials

Reduced emissions to sewer; hazardous waste reduction; reduced natural gas use

Staff trained in VSM can apply technique to other projects

Chemical cost savings

Packaging reduction through use of reusable metal crates in place of plastic and pallets

Potential for less hazardous chemical use

Cost savings resulting from efficiency improvements

Assessed rinse recovery technologies and reduced ammonia usage

Less handling of material; faster process

Possible potential for purer, higher value scrap

Use of value stream mapping and waste inventory data to prioritise areas for improvements
In particular **company 1**: packaging and dust emissions; **company 2**: reduce water based effluents

Less process steps makes job easier for operatives; cleaner process without use of oil quench
Employ people in C&D plant

Cost saving from buying in bulk; labour and waste savings

Closed Loop recovery of metal from electronic scrap tested on laboratory scale

CP training of operators

Saving on cost of oil, energy and wastewater

Reduced waste; reduced energy use

Save on cost of virgin materials

Eliminating the use of quench oil through use of water quench Eliminating tempering oven through use of existing heat within paint curing line

Reuse of C&D waste in the construction of amenity site
Performance testing of materials

Increased process efficiency results in reduced disposal charges

Reduction in waste sent off site and reduced water use

Why Is The Cleaner Greener Production Programme Being Run?

The Irish Government, through the National Development Plan 2000 – 2006, allocated funds to a programme for Environmental Research, Technological Development and Innovation (ERTDI). The EPA research programme for the period 2007 – 2013 is entitled Science, Technology, Research and Innovation for the Environment (STRIVE). The Department of the Environment and Local Government (DEHLG) asked the Environmental Protection Agency (EPA) to run the CGPP as part of the research programme. Since its launch in 2001, the EPA has committed €3.7m to CGPP over 3 Phases, supporting 60 organisations to implement cleaner greener production and to demonstrate their achievements to the rest of Ireland.

The long-term aim is to try to ensure that cleaner greener production and eco-efficiency become the established norm in Ireland. The programme seeks to promote environmentally friendly business through increased resource productivity, waste reduction, recovery of materials, improved efficiency in a product value chain, energy management and a change of culture within organisations.

The programme aims are focussed on avoiding and preventing adverse environmental impact rather than treating or cleaning up afterwards. This approach brings better economic and environmental efficiency.

Programme Managers

The Clean Technology Centre (CTC) at Cork Institute of Technology was appointed to manage the CGPP2 Programme. The CTC was established in 1991 and is now nationally and internationally regarded as a centre of excellence in cleaner production, environmental management and eco-innovation across a range of industrial sectors.

Where can I get further information?

This report summarises the outcomes of the projects conducted under Phase 2 of the Cleaner Greener Production Programme. Individual detailed reports, authored by the companies involved and produced as part of the Cleaner Greener Production Programme, are available from the Environmental Protection Agency.

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c/o Cleaner Greener Production Programme,
Environmental Protection Agency,
Richview, Clonskeagh Road, Dublin 14, Ireland.
Tel. 01 2680100 Fax. 01 2680199 Email. l.sheils@epa.ie

Website www.epa.ie/researchandeducation  select link to Research.

An Gníomhaireacht um Chaomhnú Comhshaoil

Is í an Gníomhaireacht um Chaomhnú Comhshaoil (EPA) comhlachta reachtúil a chosnaíonn an comhshaoil do mhuintir na tíre go léir. Rialaímid agus déanaimid maoirsiú ar ghníomhaíochtaí a d'fhéadfadh truailliú a chruthú murach sin. Cinntímid go bhfuil eolas cruinn ann ar threochtaí comhshaoil ionas go nglactar aon chéim is gá. Is iad na príomh-nithe a bhfuilimid gníomhach leo ná comhshaoil na hÉireann a chosaint agus cinntiú go bhfuil forbairt inbhuanaithe.

Is comhlacht poiblí neamhspleách í an Gníomhaireacht um Chaomhnú Comhshaoil (EPA) a bunaíodh i mí Iúil 1993 faoin Acht fán nGníomhaireacht um Chaomhnú Comhshaoil 1992. Ó thaobh an Rialtais, is í an Roinn Comhshaoil agus Rialtais Áitiúil a dhéanann urraíocht uirthi.

ÁR bhFREAGRACHTAÍ

CEADÚNÚ

Bíonn ceadúnais á n-eisiúint againn i gcomhair na nithe seo a leanas chun a chinntiú nach mbíonn astuithe uathu ag cur sláinte an phobail ná an comhshaoil i mbaol:

- áiseanna dramhaíola (m.sh., líonadh talún, loisceoirí, stáisiúin aistrithe dramhaíola);
- gníomhaíochtaí tionsclaíocha ar scála mór (m.sh., déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta);
- diantalmhaíocht;
- úsáid faoi shrian agus scaoileadh smachtaithe Orgánach Géinathraithe (GMO);
- mór-áiseanna stórais peitreal.

FEIDHMIÚ COMHSHAOIL NÁISIÚNTA

- Stiúradh os cionn 2,000 iniúchadh agus cigireacht de áiseanna a fuair ceadúnas ón nGníomhaireacht gach bliain.
- Maoirsiú freagrachtaí cosanta comhshaoil údarás áitiúla thar sé earnáil - aer, fuaim, dramhaíl, dramhuisce agus caighdeán uisce.
- Obair le húdaráis áitiúla agus leis na Gardaí chun stop a chur le gníomhaíocht mhídhleathach dramhaíola trí chomhordú a dhéanamh ar líonra forfheidhmithe náisiúnta, díriú isteach ar chiontóirí, stiúradh fiosrúcháin agus maoirsiú leigheas na bhfadhbanna.
- An dlí a chur orthu siúd a bhriseann dlí comhshaoil agus a dhéanann dochar don chomhshaoil mar thoradh ar a gníomhaíochtaí.

MONATÓIREACHT, ANAILÍS AGUS TUAIRISCIÚ AR AN GCOMHSHAOIL

- Monatóireacht ar chaighdeán aer agus caighdeán aibhneacha, locha, uisce taoide agus uisce talaimh; leibhéil agus sruth aibhneacha a thomhas.
- Tuairiscíú neamhspleách chun cabhrú le rialtais náisiúnta agus áitiúla cinntí a dhéanamh.

RIALÚ ASTUITHE GÁIS CEAPTHA TEASA NA HÉIREANN

- Cainníochtú astuithe gáis ceaptha teasa na hÉireann i gcomhthéacs ár dtiomantas Kyoto.
- Cur i bhfeidhm na Treorach um Thrádáil Astuithe, a bhfuil baint aige le hos cionn 100 cuideachta atá ina mór-ghineadóirí dé-ocsaíd charbóin in Éirinn.

TAIGHDE AGUS FORBAIRT COMHSHAOIL

- Taighde ar shaincheisteanna comhshaoil a chomhordú (cosúil le caighdeán aer agus uisce, athrú aeráide, bithéagsúlacht, teicneolaíochtaí comhshaoil).

MEASÚNÚ STRAITÉISEACH COMHSHAOIL

- Ag déanamh measúnú ar thionchar phleananna agus chláracha ar chomhshaoil na hÉireann (cosúil le pléanna bainistíochta dramhaíola agus forbartha).

PLEANÁIL, OIDEACHAS AGUS TREOIR CHOMHSHAOIL

- Treoir a thabhairt don phobal agus do thionscal ar cheisteanna comhshaoil éagsúla (m.sh., iarratais ar cheadúnais, seachaint dramhaíola agus rialacháin chomhshaoil).
- Eolas níos fearr ar an gcomhshaoil a scaipeadh (trí cláracha teilifíse comhshaoil agus pacáistí acmhainne do bhunscoileanna agus do mheánscoileanna).

BAINISTÍOCHT DRAMHAÍOLA FHORGHNÍOMHACH

- Cur chun cinn seachaint agus laghdú dramhaíola trí chomhordú An Chláir Náisiúnta um Chosc Dramhaíola, lena n-áirítear cur i bhfeidhm na dTionscnamh Freagrachta Táirgeoirí.
- Cur i bhfeidhm Rialachán ar nós na treoracha maidir le Trealamh Leictreach agus Leictreonach Caite agus le Srianadh Substaintí Guaiseacha agus substaintí a dhéanann ídiú ar an gcrios ózóin.
- Plean Náisiúnta Bainistíochta um Dramhaíl Ghuaiseach a fhorbairt chun dramhaíl ghuaiseach a sheachaint agus a bhainistiú.

STRUCHTÚR NA GNÍOMHAIREACHTA

Bunaíodh an Gníomhaireacht i 1993 chun comhshaoil na hÉireann a chosaint. Tá an eagraíocht á bhainistiú ag Bord lánaimseartha, ar a bhfuil Príomhstíúrthóir agus ceithre Stíúrthóir.

Tá obair na Gníomhaireachta ar siúl trí ceithre Oifig:

- An Oifig Aeráide, Ceadúnaithe agus Úsáide Acmhainní
- An Oifig um Fhorfheidhmiúchán Comhshaoil
- An Oifig um Measúnacht Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáide

Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag ball air agus tagann siad le chéile cúpla uair in aghaidh na bliana le plé a dhéanamh ar cheisteanna ar ábhar imní iad agus le comhairle a thabhairt don Bhord.



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Environmental Protection Agency - Cleaner Greener Production Programme Phase 2 Summary Results

The Cleaner Greener Production Programme is financed by the Irish Government under the National Development Plan. It is administered on behalf of the Department of the Environment, Heritage and Local Government by the Environmental Protection Agency.



BETTER BUSINESS IN A BETTER IRELAND