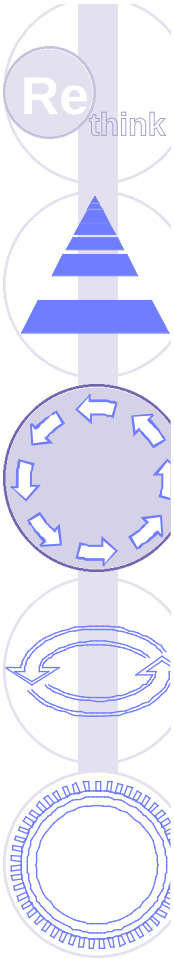
3 Reducing the Flow: Waste Reduction at Source



Prevention

The EU's fifth environmental action programme advocates acting 'at source to protect the environment, by encouraging changes in production processes and consumer choice, combining direct and indirect incentives and extending the range of policy instruments'.

Minimisation & Reuse

Chapter 3

Reducing the Flow: Waste Reduction at Source

'If one lets a tap run at constant speed into a bath tub, the tub will eventually fill and then spill over. As long as the tap keeps running at the same speed, ever more water will be brought into circulation. To stop the bath tub from spilling over, one needs to turn the tap off completely. This approach of regulating the input is still not done with regard to resource use.'

Vereniging Millieudefensie, 1999.

Waste generation, both in Ireland and on an international scale, is increasing at an unprecedented rate. The most effective way to reverse the growing trends is to prevent waste generation in the first place; that is, to reduce waste at source. This premise is the central concept behind the EU's fifth environmental action programme, which advocates acting ***'at source to protect the environment, by encouraging changes in production processes and consumer choice, combining direct and indirect incentives and extending the range of policy instruments'.***[1]

Irish Policy

The need to stabilise and reverse waste generation is addressed by Irish policy. ***Changing our Ways*** states that '***a major general objective is to stabilise, and in the longer-term reverse, the growth in waste generation'.***[2] This is quantified in ***Sustainable Development: A Strategy for Ireland,*** which states that a major goal is to stabilise municipal waste arisings generally at 350 kg/year per capita, and in the longer term, to 2010, to reduce these wastes by 20% (280 kg/year per capita). **In 1998, municipal waste generated per person was 560 kg/year.** Clearly, significant effort is required by all sectors to reduce the growing amounts of waste generated in Ireland each year.

3.1 What is Source Reduction?

While there is no universally accepted definition of source reduction at present, it is used here to imply any practice that reduces the amount or toxicity of materials generated. Reducing waste at source reverses the traditional approach of 'what do we do with waste?' and shifts the focus to 'how do we produce less waste?' **Source reduction** should not be confused with **waste reduction**, which is a broader term encompassing all waste management methods, such as source reduction, recycling and composting, which result in a reduction of waste going to landfill or other disposal facilities such as thermal treatment.

Source Reduction Practices

Source reduction practices include redesigning products or packaging to reduce the quantity of materials used, and reusing products or packaging already manufactured. For example, studies conducted in Germany after the introduction of the Packaging Ordinance showed that 98% of all 'secondary' packaging, such as boxes around toothpaste tubes, plastic wraps around ice-cream cartons, is simply unnecessary.[3] Not producing this packaging in the first place is an example of a source reduction practice. Good practices in source reduction might include the following:

- reduced material use in product manufacture;
- increased production efficiency resulting in less production waste;
- increased useful life of a product through durability and reparability;
- decreased toxicity;
- material reuse; and
- reduced, or more efficient consumer use of materials (e.g. reusable shopping bags).

1997 Waste Management (Packaging) Regulations

In 1998, the packaging content of household and commercial waste was estimated to be 26.3% and 51.1%, respectively. Under the packaging regulations, all producers are required to provide for the return, recycling or segregation of packaging arising on their premises. Major producers of packaging are required to either, take steps themselves to recover packaging, or to join an approved recovery scheme. REPAK was established as an approved body to facilitate industry in complying with targets set. **There remains an urgent need to enforce these regulations on non-REPAK members, for which local authorities have responsibility.** Some progress has been made in packaging recovery. In 1998, 15% of packaging waste was recovered. However, considerable efforts will have to be made to meet the target of 25% set for 2001 and the target of 50-65% by 2005. Thus far, any progress made has largely resulted from recycling initiatives and little attention has been given to waste reduction at source. By way of contrast, the more stringent German Packaging Ordinance has ensured the elimination of significant quantities of unnecessary packaging materials.

3.2 Source Reduction, the Waste Management Act 1996, and Local Authorities

The Waste Management Act (1996) provides considerable scope to require manufacturers to prevent waste generation. For example, Section 28 of the Act states that anyone who ***'carries on an activity of an agricultural, commercial or industrial nature (including the manufacture of any product)'*** must ***'take all reasonable steps as are necessary for the purposes of prevention or minimisation (including, where appropriate, steps as respects the design of any product aforesaid)'***.

This Act also provides for the development of producer responsibility obligations. As source reduction implies reducing the volume or toxicity of waste at its original source, the manufacturers of products have a major role to play in this process. National regulations and incentives are needed to compel manufacturers to reduce waste at source. The weight of responsibility should be placed on those at the point of product and process design, since they have the greatest capacity to develop alternatives. Economic incentives such as landfill and product taxes can be also be effective. If the generation of waste is made expensive, businesses will quickly find a multitude of ways to eliminate it.

However, local authorities can take measures to encourage source reduction. They can provide economic incentives that would encourage source reduction while also increasing recycling rates (see Chapter 5.2: Economic Incentives). As local authorities have considerable influence in their communities, they can take measures to encourage consumers and manufacturers alike to rethink their purchasing and production processes. Also, by actively engaging in source reduction practices in their own facilities they can set the standard for the community as a whole.

Producer Responsibility

Producer responsibility means that producers are responsible for the entire life cycle of their product, including its end-of-life. The aim is to encourage producers to reduce resource and energy use in each stage of the product life-cycle, and to prevent pollution, through changes in product design and process technology. In its widest sense, producer responsibility means that producers bear a degree of responsibility for all of the environmental impacts of their products. Upstream impacts include those resulting from the choice of materials and the manufacturing process. Downstream impacts include those arising from the disposal of products. By this principle, producers accept legal, physical, or economic responsibility for the environmental impacts of their products. This is merely an extension of 'the polluter pays'principle, and can be extremely effective as the producer has the ultimate choice over materials and product design.

In today's society, many products are designed for a relatively short life, and issues such as the potential for reuse or recycling are given little or no consideration. The implementation of such policies is intended to encourage manufacturers to design products with the possibility of repair, reconditioning and remanufacturing in mind. It is likely that such obligations will also lead to the greater use of leased equipment, rather than equipment owned outright by the user.

Producer responsibility is a method by which waste management costs can be shifted from the public sector back to the private sector. Responsibility for the disposal of products currently rests with local government. However, those with the greatest power to affect change are those who produce the products.

Following the EU Directive on Packaging Waste, the 1997 Waste Management (Packaging) Regulations introduced

producer responsibility to Ireland by placing responsibility on producers and importers of packaging and packaged goods. Further EU Directives will require the extension of producer responsibility to other priority waste streams such as electrical goods and end-of-life vehicles.

3.3 Local Authorities: Targeting Business and Industry

Local authorities can seek voluntary source reduction agreements from businesses in their areas. They can also provide support such as resource information, hotlines and workshops for identified waste generators. Issuing awards for source reduction would provide advertisement for, and enhance the 'green' image of, environmentally proactive businesses. It is essential therefore, to engage directly with senior management in the commercial sector to convince them of the benefits of source reduction. This will be facilitated by the provision of information on the economic benefits associated with this practice, which include:-

- direct savings;
- reduced product and material use costs; and
- reduced waste collection, transportation and disposal costs.

Convincing senior management could allow for the appointment of a reduction team, or co-ordinator, to explore options and develop a plan for their organisation. While source reduction in industry can be very much a sector specific task, there are common areas that all sectors of commerce can adhere to. A general plan could include the following components:-

- buying in bulk. Care should be taken to reduce potential obsolescence by avoiding stock build up;
- buying durable products and equipment;
- identifying and incorporating alternative materials that are less toxic or less wasteful;
- identifying sources of overpackaging, and avoiding or returning packaging, in accordance with the 1997 Packaging Regulations;
- offering alternatives to disposables; and
- an indication of immediate and long-term costs and savings associated with each of the above.

Educating employees and providing incentives for them to contribute towards achieving source reduction goals are keys to success. Regular feedback and evaluation, and the provision of employee awards will make a positive contribution.

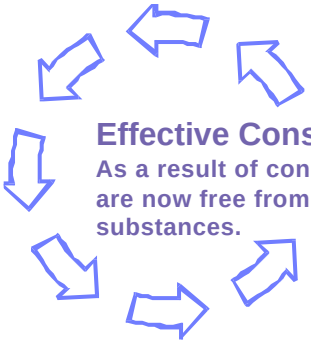
Many of the guidelines for establishing a source reduction programme for businesses are similar to those associated with the establishment of a recycling programme. The differences between the two waste-resource management methods must be clearly defined. Source reduction should always be given priority and other resource management methods applied to the reduced waste stream.

3.4 Local Authorities: Targeting the Public

Local authorities can encourage source reduction in their communities through proactive education and awareness campaigns designed to encourage consumers to influence manufacturers through their purchasing powers. Education programmes targeting the general public could be centred around influencing shopping habits. 'Eco-shopping' is a broad term which refers to the decision making process that consumers can use to judge a purchase based on its waste or other environmental implications. When making decisions on the waste implications of products, consumers can consider whether the product is:-

- reusable, durable and repairable;
- made from renewable or non-renewable resources;
- over-packaged;
- in a reusable container; or
- in a recyclable container (though not source reduction, this is part of eco-shopping education).

While source reduction and other waste reduction initiatives such as recycling can be promoted simultaneously, it is important to distinguish one from the other. It should be highlighted that purchasing products made with recycled content helps to make recycling a viable process by creating and sustaining markets for used materials, but it is not a source reduction practice. It must be emphasised that preventing waste generation in the first place is a key to reversing the current waste problem.



Effective Consumer Influence

As a result of consumer pressure, 90% of aerosols are now free from CFCs and other ozone damaging substances.

To facilitate informed consumer decision making, local authorities could host or facilitate source reduction, or 'Save a Resource', days in shops and supermarkets. Such programmes could consist of in-store signage, source reduction and information stands, and letter writing campaigns aimed at manufacturers. The following examples illustrate how other communities initiated change in consumer behaviour.

Authorities educating for changed consumer behaviours

Bergen County, New Jersey - environmental shopping

In the USA, authorities in Bergen County, New Jersey offer public education programmes about environmental shopping, which include guided tours of a grocery store to illustrate the effect shopping choices can have on the environment. Champaign-Urbana, Illinois' model supermarket, and Boulder, Colorado's 'Stop Waste Before It Happens' campaign at supermarkets both use shelf labelling systems highlight, for example, minimally packaged goods.[4]

San Francisco - 'Shop-Smart'

In 1996, the City of San Francisco co-ordinated a 'Shop-Smart'campaign to educate consumers on simple, yet efficient, waste prevention. Information displays were placed in 225 supermarkets in 103 cities and counties in the San Francisco Bay area. During the campaign, sales of recycled products and products with minimal packaging increased by almost 20%. According to exit polls, 43% of shoppers, which accounts for more than 1 million region-wide, remembered one or more elements from the campaign.[5]

3.5 Reuse in action

An objective of a sustainable waste-resource management programme would be to maximise the reuse of items before they reach the waste stream. Reusing items saves all the cost, effort and resources of actually making new ones to replace them.

Reuse - a key element of a sustainable waste plan

Reuse includes those waste reduction practices in which products and packaging are reused again (as products or packaging). It is distinguished from materials recycling, in which a product is broken down to its individual materials and these materials are recycled. The simpler processing involved in product re-use places it above material recycling in the Waste Management Hierarchy.

One of the most familiar systems of reuse is returnable drinks packaging, most notably the milk bottle. Local authorities can use their lobbying powers to encourage central government to reintroduce and develop such deposit-refund schemes. Local authorities can also encourage (in accordance with EU competition requirements) dairies in their area to revert to returnable systems.

Deposit Refund & The 1996 Waste Management Act

Under this Act, regulations may be introduced that require a producer, distributor or retailer to operate a deposit and refund scheme.

S.29.4 (f) Waste Management Act, 1996.

Reuse and repair as a method of resource management has considerable potential, not only by reducing waste, but also in terms of community development, yet is an option that is often overlooked. Apart from developing their own reuse and repair centres, local authorities can encourage reuse in their communities by:-

- supporting existing, and creating new opportunities for community based reuse initiatives such as garage sales, community repair centres or 'Swap Shops';
- ensuring the development of, and easy access and use of an effective waste exchange database to facilitate the safe reuse of items; and
- developing programmes for increasing the financial viability and management independence of material reuse centres.

Reuse presents considerable opportunities for community development. Schemes that accept used goods, overstocks and 'off-spec' items, including furniture, appliances, office equipment and other durable goods can be repaired where necessary and then made available at a reduced or no cost to low income households, charities and community groups.

Local authorities, when developing reuse or repair programs, could seek to co-operate with existing local charities that are already involved in the repair and resale of products. International experience has shown that community groups and the not-for-profit sector have a major role to play in local waste reduction initiatives. Many non-profit organisations have structured initiatives aimed at creating meaningful jobs and businesses from waste. Some of these groups have proven that even in small communities it is possible to create viable waste reduction, reuse and recycling programmes. Cooperation and support from local authorities can significantly enhance the success of any community reuse or recycling scheme. For example they can provide the premises, transport and technical assistance to help enhance these programmes.

Case Studies

Reusing for Sustainable Business and Community Development

Case Study: SOFA Project, Bristol, UK.[6]

Bulky items such as furniture and electrical appliances represent a significant proportion of the household waste stream. The SOFA project collects and repairs such items, diverting them from disposal whilst providing employment and creating a sustainable business in the process.

In the Bath and North East Somerset region, the council typically charges a fee to residents for the collection of bulky household items. This fee encourages residents to find alternative avenues for these items, such as charity shops and local reuse and recycling projects, such as the SOFA project.

The SOFA Project is a registered charity that was founded in 1980 by representatives of various voluntary agencies and the probation service. It provides a collection, repair and resale service for furniture and domestic appliances. The charity collects approximately 30,000 items and delivers to 7,000 households free of charge every year. The Bath and North East Somerset Council subsidises this collection service and with **support from Bristol City Council**, SOFA moved to its current warehouse in 1991, which is open to the public six days a week.

Items are collected for the purposes of reuse, degassing or recycling as appropriate. Prior to resale, all appliances are tested for safety and are guaranteed for at least one month's repair, replacement or refund. These items are then made available at affordable prices to low-income customers in the Bristol and old Avon area.

SOFA employs 15 full-time staff and also has opportunities for volunteers. It is largely self-funded and maintains its service through the sale of furniture and appliances. SOFA makes a positive contribution to the community by providing a useful service whilst creating jobs and providing training in the process.

Contact:

Ron Taggart, Development Manager
Kelseo House, Waterloo St., Old Market, Bristol.
Phone: 0117 941 3322 or 0117 951 8982
E-mail: sofa@brisrc.demon.co.uk

Case Study: Recycle - IT!, Luton, UK.[7]

In today's society, where rapidly advancing technology is outpacing the marketplace, the life span of computers is becoming increasingly shorter as businesses are continuously trading in their old computers for newer models. Charities and other community organisations, schools and individuals often need computer equipment that provides basic word processing and Internet access - exactly what larger firms' redundant equipment can offer.

Recycle-IT! is the largest not-for-profit computer recycling project in the UK, collecting in excess of 300 units every week. The company is financially self-sustaining (although its premises are rent-free) and employs eight permanent full time staff, in addition to providing casual employment when demand permits. Recycle-IT! is committed to improving the lives of unemployed people and to creating jobs, in line with the vision of its founding charities. A number of volunteers are offered training and the chance to learn practical skills in a growth area, in addition to a free computer of their own after six months.

Donors and recipients

The majority of donors are private sector companies, public sector bodies and local authorities. The Department for Education and Employment also donates equipment.

Recycle-IT!'s target market includes charities and voluntary organisations in the UK and abroad, churches and centres of worship, schools and educational establishments, small businesses supported by a small business development agency and people with disabilities nominated through a support agency. All equipment is supplied at a low cost. Very little financial outlay is required to market the service to groups; the need for low price quality equipment is so great that publicity about the scheme works through 'word of mouth' and community newsletters.

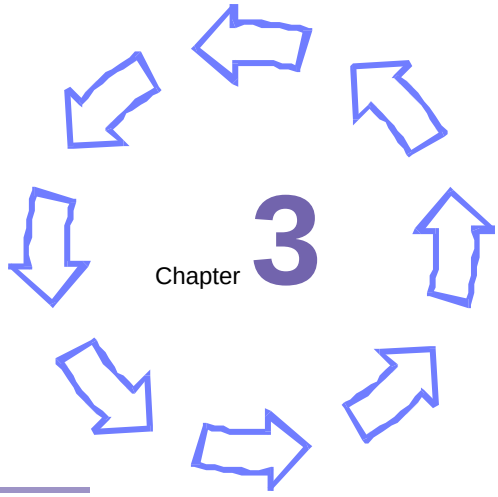
The process from start to finish

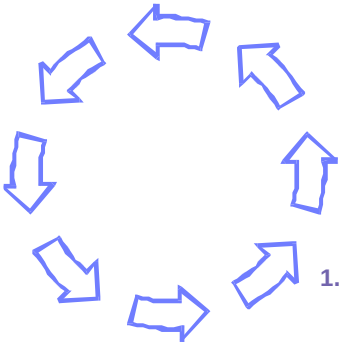
Many potential donors do not have the time or contacts to identify suitable recipients for their discarded equipment. Also, as sensitive information may be stored on the hard disc, many companies prefer to dispose of equipment rather than give it away. Recycle-IT! provides a solution to these problems by collecting equipment for redistribution, following permanent wiping of data and software as well as safety checking. Donors are protected from technical problems raised by recipients and from any legal issues that may ensue as the result of transferring the equipment to a new user.

Each unit collected is given its own identification number to enable it to be tracked if required. This may be important if donors require information about the end destination of their equipment, or are concerned that it is donated to a particular sector of the target market. For example, the Department for Education and Employment prefer their equipment to be given to educational causes.

At the Recycle-IT! workshop, each machine is logged with its make, model and serial number. Hard discs in the computer are permanently wiped of donors' data and software, and all identifying marks are removed. Basic electrical and other checks are made (in line with Trading Standards requirements) to ensure that the equipment is safe and suitable for reuse. On average, about 40% of the equipment does not work; if it cannot be easily repaired it is cannibalised for parts and the remnants are sent to specialist firms which treat toxic substances and recycle the metal, glass and plastic elements. Reusable equipment is checked for viruses and loaded with software. The licenses for the software (operating software and applications) are donated by companies. Recycle-IT! customises equipment to meet specific end needs - for example, those of a disabled person.

Contact:
George Ruddock
Recycle-IT! Ltd, C/o SKF (UK) Ltd, Sundon Park Road, Luton, Bedfordshire LU3 3BL
Phone: 01 582 492 436





References

1. The Environment and the regions: Towards Sustainability, The European Commission Web Site (URL: http://europa.eu.int)

2. Department of the Environment and Local Government (1998), Waste Management: Changing our Ways.

3. Hawkin, P. Lovins,B., Hunter-Lovins,L. (1999), Natural Capital, Earthscan Publications, London.

4. US EPA (1999), Cutting the Waste Stream in Half.

5. Friends of the Earth and the Community Recycling Network (1998), Recycling Works, UK.

6. Waste Services in Bath and North East Somerset (2000) & The Community Recycling Network Web Site (URL: www.crn.org.uk)

7. Community Recycling Network Web Site (URL: http://www.crn.org.uk/about/cases/)