15 Product-related Environmental Policies

15.1 The Background

15.1.1 Environmental Problems

Throughout this book we have seen how product flows give rise to environmental impacts. Following the MET model the three broad categories of impacts are 1) depletion of material resources (M) 2) deterioration of ecosystems (E), and 3) adverse effects on human health through toxicity (T).

The major causes of these impacts have also been identified. A special place is occupied by the *energy sector* and the fossil fuels, since combustion of fossils – coal, oil and gas – gives rise to impacts in all categories. These include the 1) depletion of non-renewable resources, 2) deterioration of ecosystems e.g. through the acidification that the sulphur in fossils gives rise to, and 3) emissions of toxic substances such as NO_x, VOC, and some heavy metals, especially mercury. These impacts occur on all scales. The CO_2 emitted contribute to the greenhouse effect on a global scale. Air pollutants are mostly regional, e.g. affecting the Baltic Sea region, while some pollutants, such as NO_x, are more serious on the local level.

In addition to the energy sector we should mention the *transport sector*, which is becoming an increasingly larger part of the environmental problems due to its use of fossil fuels, the resulting air pollution, as well as impacts caused by a large infrastructure. Finally *agriculture* has a special role since it leads to a different impact panorama, with eutrophication of waters caused by artificial fertilisers, sometimes dissemination of biocides causing eco-toxic effects, and space intrusion influencing biodiversity.

15.1.2 The Products

The life cycle of products are contributing to environmental impacts in all these aspects, material flows, energy consumption and toxicity. Product developers can prevent or reduce environmental problems by being very careful with regard to their choice and amount of materials used for the product or service, the energy consumption of the product and to avoid toxic substances, as has been described in some detail in previous chapters.

Materials can be saved by not making products too heavy, by extending their lifetime or by promoting recycling. Wasting products constitutes in itself a resource flow. Still about 50% of all waste in Europe ends up on the landfill, and very little is reused or recycled. There are reasons to believe that re-

In this Chapter

cycling properties of products will be increasingly important. This gives rise to a demand for secondary materials and results immediately in reduced use of virgin material.

All products cause energy use during their production. For some products this is trivial compared to the energy use during the use phase. One important and common role of LCA is to find out where the major energy use occurs. The ecodesign strategies can be efficient tools to make changes to reduce energy use. So far energy is too cheap for it to have a very decisive impact on products for the customers, but with increasing costs this important aspect of product design will carry larger weight.

All products are transported and thus contribute to transporting environmental impacts. Most often the transport is less than 5% of the cost of a product. There is thus at present little incentive to reduce transports. It is more important that products become available when the customer or the market wants them. Thus again we will most likely not see large efforts to reduce impact from transport until it becomes more expensive.

It is important that at the start of each product development project a careful assessment be made to determine the most relevant environmental priorities to apply to the specific type of product. Also services are part of the product flows, since they all are dependent on some kind of products, although sometimes it is minimal.

15.1.3 The Policy Instruments

The way product designers and producers manufacture, use and waste products can be influenced by policies. Those who want to implement a policy, be it an authority or a company, need tools or – as it is most often called – an *instrument* to do so. Policy instruments related to product design are many. Several of them are listed as follows in five main categories [Rydén and Strahl, 1995; Semeniene, 2003]:

Direct *regulatory instruments*. These include prohibitions, admission procedures, registration procedures, information duties, product standard and advertising rules (in some countries not all legally regulated), guarantee periods, obligations to take back, quotas of returnable products, minimum quotas of waste materials, recycling/refuse quotas, distribution restrictions, user obligations, and user benefits.

Economic instruments, such as product taxes and product charges, financial assistance, subsidies for ecodesign activities, deposits refunds, marketable permits, public procurement, leasing, and product liability.

Compulsory information instruments, such as compulsory labelling for identification of hazardous substances, directions for proper handling and disposal, energy consumption and declaration of contents.

Voluntary information instruments, with eco-labelling, test reports, other voluntary labelling schemes, code of conduct, quality marks, trade marks, Life Cycle Assessments declaration.

Voluntary agreements between authorities and companies include non-compulsory self-commitments of certain industries, mostly established through the initiatives of business organizations. Some of the agreements may develop a more or less legally binding character in time.

All these policy tools are used by the different actors on the market, the authorities, the companies and the interest organisations, NGOs. In the

Figure 15.1 Gdansk. *Several cities in the Baltic Sea region improved the environmental profile substantially during the last several years. Municipal environmental policy is then crucial. Among the more successful is Gdansk city, which received the Baltic Sea prize for good water management in 2002.*

rest of the chapter this will be illustrated. For many of the examples the more detailed treatment in the previous chapters should be consulted.

15.2 EU Policies

15.2.1 The Integrated Product Policy, IPP

In February 2001, the European Commission adopted a Green Paper on an Integrated Product Policy, IPP, with the objective to "launch a debate on the role and possible measures that could be taken on a European Union level to integrate its efforts to reduce environmental impact though a product policy." (See Internet Resources *European Commission – Integrated Product Policy.*)

In the background there was a global concern about sustainable production and consumption expressed at the Johannesburg conference on Sustainable Development in 2002. At the World Summit the countries adopted a ten-year framework programme on sustainable production and consumption patterns. The main purpose of the programme was to break the link between economic growth and negative environmental impact.

The Commission wrote in 2001 that "all products cause environmental degradation in some way, whether from their manufacturing, use or disposal. The Integrated Product Policy seeks to minimise these by looking at all phases of a products' life-cycle and taking action where it is most effective."

Such a policy is not simple. The life-cycle of most products is long and complicated, from the extraction of natural resources, to manufacture, marketing, use and waste. It involves many actors, such as designers, industry, marketing people, retailers and consumers. IPP attempts to stimulate each of these to improve their environmental performance using a variety of tools, both voluntary and mandatory. These include economic instruments, substance bans, voluntary agreements, environmental labelling and product design guidelines. In addition IPP is not only an instrument to reduce the adverse effects of goods and services on the environment. It also intends to change people's attitudes to consumption and influencing the demand for products in society.

The member countries were already in 2001 charged with developing instruments and mechanisms to make IPP effective. In one member country, Sweden, the Environmental Protection Agency gathered public authorities, trade and industry and NGOs to a national network to discuss experiences and opinions on IPP. Issues that have been discussed include: the role of industry, the function of the EU internal market as an "engine" for greening products, the Swedish government's assignment on IPP, eco-labelling etc. Experiences among authorities, representatives from the environment and the business sector, scientists and consumer representatives have since jointly developed the issue to drive the process forward. (See Internet Resources *Producer responsibility at the Environmental Protection Agency*.)

15.2.2 EU Directives Supporting the IPP

A number of special Directives are important components of the Integrated Product Policy. Several of them will be mentioned here (see Internet Resources at the end of chapter).

The Directive 2005/32/EC concerns the ecodesign of Energy-using Products (EuP), such as electrical and electronic devices or heating equipment. This directive provides EU rules for ecodesign to reduce disparities among national regulations, in particular to reduce obstacles to intra-EU trade. The Directive defines criteria for environmentally relevant product properties, such as energy consumption, and how to introduce them quickly and efficiently, although they are not directly binding requirements for specific products. The use of such criteria will facilitate free movement of goods throughout the Union and enhance product quality and environmental protection. Products that fulfil the requirements will benefit both businesses and consumers. The Commission writes that "the Directive constitutes a breakthrough in EU product policy and introduces many innovative elements together with concrete application of the principles of the 'better regulation' package".

With the Directive the Commission implements the IPP and moves towards improving the environmental performance of energy-using products. After adoption of the Directive by the Council and the European Parliament, the Commission will be able to implement measures on specific products. These include energy consumption, waste generation, water consumption, extension of lifetime after impact assessment, and a broad consultation of interested parties. The products covered by the Directive are those with major environmental impact, large volume of trade, and a clear potential for improvement, especially if market forces fail to make progress in the absence of a legal regulations.

The Energy-using Products (EuP) Directive is expected to work together with several other EU regulations on environmental aspects of products. These are e.g. the:

- Directives regulating the management of waste from electrical and electronic equipment (WEEE).
- Directive on the use of certain hazardous substances used in this equipment (RoHS).
- Directives related to the energy efficiency of appliances such as the . Products which have been awarded the Eco-label will be considered as following these measures to the extent that the Eco-label meets the requirements of the implementing measure.

The EMAS registration is also relevant in the context. By itself an EMAS registration for a company does not grant that the products manufactured follow the Directives. A company may however use an environmental management system which includes product design, to more easily introduce compliance with the relevant Directive.

15.2.3 European Platform on Life Cycle Assessment

Another important initiative by the Commission to support IPP is the European Platform on Life Cycle Assessment. Its initial phase will run from 2005 to 2008. A key aspect of the project is to create a "Thematic Strategy on Waste Prevention and Recycling" and the "Thematic Strategy on the Sustainable Use of Natural Resources" as part of the Integrated Product Policy. (See Internet Resources *European Platform on Life Cycle Assessment*.)

The platform intends to support industry by reducing costs for LCA studies, to harmonise quality control, to produce consistent databases and cost-efficient data transfer in the supply chains, and to provide more reliable use of LCAs in decision support and its acceptance in governments. The guiding principles of the platform include stakeholder consensus, the use of existing LCA practice and knowledge to make it scientifically robust, practical and affordable, and long-term support.

The platform intends to also develop measures to analyse the life-cycle economy of a product through Life Cycle Cost, LCC, analysis. Life Cycle Cost is defined as the total costs of the analysed system (product, process or service) during its whole life cycle. LCC analysis should be performed at the second LCA stage, the Life Cycle Inventory, LCI. The environmental impact of the functional units should then be expressed also in monetary terms, and the modelling should be supplemented with economic inputs and outputs. The LCC should thus include costs for purchase and installation, energy, use, maintenance, environmental costs and disposal. On the positive side in such a LCC we may find incomes from energy recovery, reduced (or even eliminated) fines for pollution, lower operation and maintenance costs, etc. The LCC analysis should make it possible to identify the most cost-effective solution, resulting in a lower total cost of ownership. An LCC analysis is important from the standpoint of effective economic planning, as this includes all costs considered in the decision-making process.

The platform thus intends to establish the necessary methods and tools to enable companies to develop a both environmentally and economically optimal life cycle for a product.

15.2.4 Implementing the Legislation

The implementation of the regulations, European or national, is the task the national authorities. This may be done in many ways; a command and control approach is not necessarily the most efficient. However certain rules need to be respected to make the process efficient [Klemmensen, 2006].

Firstly compliance with the European environmental regulations must be harmonised between countries. This will ensure equal competition between companies in the market. First because rules are the same in the countries of origin of imported products and secondly because the rules are applied in each of the local production sectors. Trade unions, employers' associations etc all have to take responsibly for such a process.

Secondly environmental labelling and accreditation of products and services also need to be suitably promoted and controlled in order to give them credibility and prestige in the eyes of consumers.

Companies should ideally have access to the necessary technical and human means of training, research and promotion to introduce a new system. The participation of researchers and universities in seeking cleaner production processes and systems is also important. Authorities, industry associations and chambers of commerce on their own or in collaboration have traditionally contributed to such activities. Public funding is a good incentive for private companies to introduce these new systems, and a way for the authorities to foster ecological design and cleaner production.

Also, authorities need training to reinforce environmental monitoring and promotion.

The role of authorities thus should not be misunderstood. Inspection and control in many instances is more of a dialogue between authorities and companies than outright policing. In the end both parties are interested in arriving at a permit or licences which is accepted by both of them as smoothly as possible.

15.3 Local Authorities

15.3.1 The Role of Local Authorities

One of the main objectives of the local authorities is to guarantee the quality of life of citizens by preserving and improving the environment and the use of resources. It may do so by effectively using environmental regulations and economic incentives. Many of these measures are decided on at the European Union and the national level. However the local authorities have not only the task of implementing these regulations, but also, when doing so, the possibility of achieving much more in the areas of sustainable development, including product-related measures.

Most local authorities have a policy for environmental protection. Such a policy may both refer to the city's own administration and the city as such. For its own administration and activities the municipality may develop and apply manuals of good environmental practices to establish optimal use of the resources and minimal pollution and waste in public establishments.

The local authorities in most countries have many ways to improve the environmental performance on the local level. They are responsible for basic services such as water and wastewater management, energy supply and waste management. They have a planning monopoly and thus responsibility for urban planning with streets, green areas, and the built environment. They may be managing the educational systems and large part of the care of children, elderly and the primary health care. They often have a very large economic turnover in connection with these responsibilities. All of this leads to opportunities to improve product policies.

Waste management is important for organising practical recycling opportunities and organise the reuse of products which are not in bad shape. (Or even to organise repair of wasted products, which may be reused after repair.) Similarly wastewater treatment and the resulting sludge management offer opportunities for recycling.

Energy supply, which in many places is managed by municipalities, offer the possibility to reduce resource flow. First of all energy efficiency programmes have very successfully been implemented in several cities, and up to about 20% reductions have been achieved in many cases. Solid waste incineration is one way to reduce land filling and increase energy from renewable sources.

Traffic and transport planning also offers substantial practical means to reduce resource flow. A well-functioning public transport system combating increased car traffic, reduce resource flows drastically. Further possibilities include paths for biking, car-free streets, well-managed parks, arrangements for distribution of goods to the city centre.

Finally the large-scale activities in a municipality offer opportunities to buy green products. This is green procurement, to be discussed below.

Figure 15.2 City environment. *Through its planning monopoly cities play a decisive role for the environment in the cities. One important possibility is to improve the conditions for bikers and thus decrease car traffic in the city. This has been done by many cities in the Scandinavian countries and Germany, and is starting to be popular in the three Baltic states.*

15.3.2 Green Procurement Policies

Purchases by public authorities represent about 15% of all purchases in the European Union [Charter and Tischner, 2001]. If all these were geared by environmental concerns it would be a very strong force in promoting an environmentally improved product policy. Green procurement refers to the purchase of environment-friendly products and in general the observation of environmental criteria, for purchases in public works and projects. The EU Sixth Environmental Action Programme includes public procurement as an area which has considerable potential for "greening" the market through public purchasers using environmental performance as one of their purchase criteria.

There are many examples of what a local authority may do. It may, for example, request that energy for public buildings be supplied from a renewable source, or that food for a school canteen comes from organic produce. Sometimes municipalities hesitate to introduce a green procurement policy since they believe that green products are more expensive than conventional alternatives. This is true in some cases, particularly where development costs are reflected in the price; however, often there is no significant difference. The real problem may simply be that products are being ordered in small quantities, or are not available locally. Sometimes a green product may have a higher up-front purchase price, but will cost less over its lifetime. For example, a non-toxic alternative to a toxic product will cost less to transport, store, handle, and discard. Similarly, a product that uses less packaging and that is easily recyclable or reusable will carry a lower disposal cost.

Although there is a considerable amount of green procurement activity in the EU, the picture is patchy. In some Member States 90% of public authorities have defined a green purchasing policy. But although a great deal of information has been produced on green procurement, it is not always easy to find

it, and in some Community languages there is virtually nothing available. As a result, authorities that would like to begin a green procurement policy often find it difficult to locate the right legal and practical information on how to proceed.

Authorities need to know what environmental information to place in their call for tenders, and what rules are used. An authority needs to respect the EC Treaty Internal Market rules and the public procurement Directives. These refer to public contracts that are covered by the EC Directives on public procurement as well as those that are not covered by these Directives but are nevertheless subject to Treaty rules. At each stage in a public procurement procedure the protection of the environment may be taken into account. For example, when defining the subject matter of a contract, public purchasers can, like private purchasers, decide to purchase environment-friendly products or services. Similarly, the public purchaser may specify the raw materials and the production processes to be used in the contract.

Since 1994 greener public procurement has been promoted in the Action Plan for a Sustainable Public Procurement Policy. In 1995 the Danish government sent a memorandum on green public procurement to all state institutions and state-owned and state-controlled companies specifying that environmental aspects must be taken into consideration alongside price and quality factors. The memorandum was been positively received and has resulted in a change in purchasing behaviour.

Figure 15.3 Green procurement. *For many years, Taxi 020 has been certified according to the standard of ISO 14001 and use an environmental management system called Green Taxi. New investments in cars is guided by green procurement and within 2010, 80% of the taxi fleet will have engines modified for ethanol, biogas or hybridtechnique. (http://www.taxi020.se/taxi020/site/index.htm)*

15.4 Companies

15.4.1 The Role of Companies

Increasingly many companies adopt environmental policies. For example one of the first measures when introducing an environmental management system is to develop an environmental policy. Such policies normally includes how the companies can promote environmental protection in their production activities. It may also outline how environmental concerns may become an opportunity for innovation rather than an obstacle to business development. An environmental policy should at best address all phases of conception, design, manufacture, distribution, use and waste processing of products and services. In the end an environmental policy should lead to environmental values becoming a fundamental part of the corporate culture of the company.

There are several reasons for a company to adopt an environmental policy. Increasingly often environmental regulation requires the introduction of practices and technologies that favour the reduction of waste and pollutant emissions and the saving of energy. These measures may also be the best step to improve the profitability and competitiveness of a company.

Authorities often support companies, that wish to revise their production systems to incorporate environmental criteria, by subsidies and tax deductions for the incorporation of cleaner technologies and those that use renewable resources. The introduction of environmental management systems is also a good platform for collaboration with inspection authorities and other authorities.

15.4.2 Sustainability Policies

A company policy for environmental protection may be expanded to become a policy for sustainable development. This should then include a policy for social responsibility, or so-called *corporate responsibility*.

Many companies have a long tradition of community involvement. In general the initial business response to sustainability concerns – especially those created by specific incidents such as environmental disasters – was to treat the issue as a public relations problem. However, a sustainable business also has other objectives (which some will see as being equal in importance to profitability, others as subsidiary to it). This includes environmental protection. The second is social inclusion, which can be seen as improving the stock of social capital. As economic development increasingly rests on human knowledge and skills, many would also add a fourth sustainability objective, that of enhancing the stock of human capital through education, training and other means.

This policy leads to the acceptance of some degree of responsibility for the environmental impacts of suppliers of inputs and the consumers of outputs [Russell, 1998]. Often the impacts of these upstream and downstream stages of the chain outweigh the impacts of the organization itself, particularly for service industries. In some sensitive industries, failure to identify and improve the environmental and social performance of suppliers can also compromise the saleability of the company's product or service. McDonald's and Nike are just two of the organizations that have faced consumer boycotts for allegedly failing to, respectively, conserve tropical rainforests and insist on reasonable working conditions at suppliers in developing countries.

Sustainability will be taken seriously in most companies only if a business case can be demonstrated, that is, the company needs to show the financial costs and benefits of environmental projects and measures. A great deal of work has been done on integrating environment into business financial infrastructure. It is even more difficult to include the social dimensions of sustainability. One example is Baxter Healthcare International's environmental financial statement to assess its environmental costs and benefits. The statements demonstrated that the financial benefits created by environmental programmes substantially exceed their costs.

Most companies have paid less attention to the social performance of suppliers, but this is now being addressed through new initiatives. The evidence is that concerted initiatives of this kind by business customers can drive considerable environmental and social improvement among their suppliers. This is normally expected to occur in addition to, rather than instead of, other procurement criteria such as price and quality. Further, as more procurement moves to electronic e-commerce platforms, some of the bonds between buyer and seller are broken, with the possible result that it will become more difficult to put pressure on for better – or even to assess accurately – sustainability performance.

15.4.3 Producer Responsibility

One step to a better product policy is when the company producing a product also has a responsibility to take care of the wasted product. This is *producer responsibility*. It is a means to transform today's consuming and polluting "waste society" into an ecologically sustainable society. It is often developed as an agreement between authorities and companies.

The long-term purpose of producer responsibility is that it should lead to more environmentally responsible product development. In this way, producer responsibility becomes an instrument to induce producers to develop products that are more resource-efficient and easier to recover/recycle and do not contain environmentally hazardous substances.

Producer responsibility is implemented by the establishment of companies or associations for the collection of wasted products, such as paper, glass, tyres, etc. It is being reported to authorities as recycling rates. It may also be implemented as refunding systems, such as refunding of returned aluminium cans or PET bottles. Then the company established by the producers then take care of the recycled bottles.

Producer responsibility has been introduced in many countries in the 1990s. In Sweden it was included in the Eco-cycle Bill of 1993, formally by amendments and addendums to the Waste Collection and Disposal Act from 1994 (see *Producer responsibility at the Environmental Protection Agency*, Internet Resources). The recovery/recycling targets agreed with the producers were reached in 2003 and surpassed for some product groups. 48% of the packaging waste was recycled and 77% was recovered. Recent reports show that maintenance of the recycling stations has improved significantly and that littering has decreased. Collection of WEEE (waste from electrical and electronic equipment) continued to be high as about 11 kg of WEEE collected per person and year. Supervision of vehicle dismantling companies is being strengthened by a combination of measures. All collected tyres are disposed of by other means than land filling.

15.4.4 Reporting Business Performance

Companies, that have improved their environmental performance want to make this known to customers and other partners. There are several ways to do this. It is all part of green marketing, but also important internally for the company. Environmental reporting in Europe is an increasingly compulsory activity. For companies it is important to identify the tangible benefits in reporting. There are several positive outcomes of reports, as they are directed towards several target groups.

Several different kinds of reporting exist. Some of them are listed in Table 15.1. Internal reports are needed technically for the work of the company. A good report also enhances employee morale, and encourages future cooperation and participation.

Also an eco(re)design project should at best include writing a report. The report should be based as much as possible on qualitative estimations of the environmental gains made as a result of the (re)design. It should summarise the result of the project and hopefully be able to demonstrate its advantages.

External reports are important for the external relations of a company. It is important for the company to demonstrate to external stakeholders, by strengthening stakeholder relations, and demonstrating the coherence of overall management strategy. It plays a role in the financing of a company by informing existing investors and reaching a wider range of possibly new investors.

Another target group for reporting are authorities. Effective self-regulation minimises risk of future regulatory intervention.

The public in general is an important target group. Good reporting contributes to public recognition for corporate accountability and responsibility. Potential customers and suppliers may are influenced by access to lists of "preferred suppliers" of buyers with green procurement policies.

The standard for sustainability reporting in business now developing is the Global Reporting Initiative, GRI. The manual for GRI, used by many companies, especially larger companies, address important elements in economic, environmental and social performance. One response to this has been attempts to adapt existing business performance measurement activities to take account of sustainable development. The developers of this framework argue that:

The new, value-related measures will lead a company away from commodity products and toward a search for ways to differentiate products through branding, upgrading function, or building with services. These measures reward delivery of value to the customer – translated into sales or value added – and the simultaneous reduction in environmental footprints. The older measures, in contrast, reward increases in throughput, capital investment, and production.

Of their six new measures, knowledge intensity and focus on function are the most challenging. The first is related to the question of measuring intellectual capital, which is attracting growing interest in conventional business performance measurement circles.

15.5 The Market

15.5.1 Green Procurement and Supply Chain Management

The environmentally responsible or "green" procurement – the selection of products and services that minimize environmental impacts – is important not only for authorities but also for companies [Brezet, 1997]. In companies this has two aspects. Firstly the company buys products and services just as a municipality may do. Secondly it is a question of buying raw materials for manufacturing. In the first case the green policy requires that the company carry out an assessment of the environmental consequences of a product at all the various stages of its life cycle. This means considering the costs of securing raw materials, and manufacturing, transporting, storing, handling, using and disposing of the product. It means evaluating purchases based on a variety of criteria, ranging from the ne-

Table 15.1 Environmental reporting. *Environmental reports used by different companies serves several purposes some internal and some external. Performance indicators (emissions or resource use per product or product value) and product focused reporting are the two most interesting in product development [Hillary and Jolly 2001].*

Reporting methodology	Description
Compliance-based reporting	Reporting the level of compliance with external regulations and consent limits is often the core feature of the environmental reports of heavily regulated utility industries such as water and electricity.
Toxic release inventory-based reporting	Many US companies are required by law to publish lists (detailed in physical quantities) of emissions of specific toxic substances. These mandated disclosures often take precedence over voluntary performance-based disclosures.
Eco-balance reporting	Some companies (including many from Germany) construct a formal "eco-balance" – a detailed account of resource inputs and outputs (in terms of product output and waste/emissions) – from which they then derive performance indicators.
Performance-based reporting	Perhaps the most common form of environmental reporting. Reports are usually structured around the most significant areas of environmental impact. Performance improvement targets are then set and appropriate performance indicators developed and disclosed annually.
Environmental burden reporting	The UK chemicals company, ICI, has developed an externally focused reporting approach that quantifies the company's impact on several environmental quality measures. A potency factor allocated to each emission is multiplied by the quantity emitted per year to provide the environmental burden.
Product-focused reporting (ISO 14031)	Volvo has produced an "environmental product declaration" report that evaluates the total environmental effect of one specific Volvo model. Issues covered include operation, recycling, manufacturing and environmental management. In this case, environmental responsibility has extended beyond the factory gate.

cessity of the purchase in the first place to the options available for its eventual disposal.

The environmental performance of suppliers has been the focus of a number of collective and single-company initiatives. One of the best known of these is that of the UK-based retailer of do-it-yourself (DIY) products, B&Q. In 1992 the company initiated a programme to raise the environmental awareness of its suppliers and award them a rating. More action was also taken to inform customers about the environmental implications of the products the company sells. In 1998 the company announced a further stage in its programme, with a target of all its suppliers understanding the key impacts over the life-cycles of their products and developing an action plan to deal with them.

For an organization to implement a green procurement programme, it must have commitment from all levels. A policy statement outlining the corporate commitment to green procurement or environmentally focused supply chain management is needed. It may lead to choosing other distributors or agreeing with old partners to find new products or resources. If several companies have similar policies, the improved market will support such a development. Sometimes there are technical difficulties to overcome and a project is needed to develop a new product, new ways to store a product etc. In these situations it is important that the environmental requirements be specified, best with LCA techniques.

In Canada, where considerable experience exists, the authorities write: "A pilot project can provide practical experience in purchasing green products and services, by applying green procurement principles to a specific product or service. Pilot projects can be used to generate more detailed guidance on purchasing practices. Implementing the green procurement programme will require an assignment of accountability, plus a well-designed communications plan addressing employees, customers, investors, suppliers and the public. As with all business practices, it is important that a systematic review of the green procurement programme be carried out, in order to establish whether the scheme is meeting its targets." (See *Manitoba Green Procurement Network*, Internet Resources)

Green procurement can also be applied to larger projects. In the construction industry this may be very important, such as for greening the building of houses. "Green" construction materials can be used in energy-efficient project designs. Transport often has a large share of the environmental impact, and one needs to consider vehicles with good fuel efficiency or providers that have a shorter distance to the site of construction or company.

Often however procurement in a company is concerned with the supply of resources for the production. Then it is most often referred to as *supply chain management*. This refers to the selection of resources which have reduced environmental impact, expressed e.g. as footprint or MIPS, which require less transport, and which have less impact later on in the life cycle of the product.

15.5.2 Selling an Environmentally Better Product

It is important that the environmentally improved product (which may often also be of superior quality) also is successful on the market. This depends on several factors.

An important variable is the price. Ideally the new improved product should not be much more expensive than the traditional product. For environment-conscious customers who change quickly to the new product, the so-called early adopters, the price difference will be less important; such customers are willing to pay more for a better environment. For the majority it is, however, an obstacle for choosing a new product. Then it is important that the advantages of the new product be clearly stated and described. The self-reported positive outcomes of consumers' own estimations of their "willingness-to-pay-more" for green products regrettably show a strong positive bias compared to their actual purchase behaviour.

But costs may also be lower. Call-a-car for example, joint leasing of cars by groups of people, and other "service products", may provide a better service, a higher quality car than the old one, at lower cost. If a product has been redesigned in such a way that the environmental costs for other parties in the chain are demonstrably lower than the costs for competitors' products, it is possible to achieve a price advantage over the competitors. Similarly, energy saving during use or a longer life may also justify a higher price.

If the new product is to achieve a high market penetration, then it is essential to ensure an intensive distribution network. If the main aspect is to improve existing products, this need not be a problem – existing distribution channels can continue to be used. The market has meanwhile developed to such an extent that chain stores are starting to sell environment-friendly products and use environment-friendly packaging.

If special arrangements are made (with recyclers or municipalities, for example) about the return or "take-back" of products, it is wise to include them in the marketing plan. Particular attention should be given to the logistics and financial aspects of the combination of product distribution and return of packaging by retailers. This also applies in the event that the company takes care of this "reverse distribution" at its own expense. By doing this, the company – in its plan – makes it clear to all concerned that it regards green marketing as more than simply selling "green" products, and also that it takes the after-sales aspect seriously.

The retail trade is a crucial link in the sale of ecodesign products. Retailers may set higher environmental requirements in order to improve their range of green products. Assuming that price and functional quality are competitive with classical products, the retail trade selects its products on the basis of e.g. packaging, low-solvent products and products that contain no CFCs or heavy metals. It is essential for companies to cooperate actively with the retail trade to be successful in ecodesign and green marketing.

Study Questions

1. Describe the basis of the EU environmental policy on products.
2. Make an overview of EU product policy instruments. Is something missing? If you think so explain why.
3. In which way may a local authority influence the quality of the environment in the municipality through its product policy. Give examples.
4. Explain how the LCC (Life Cycle Cost) of a product is related to its LCA (Life Cycle Assessment).
5. In which ways can a producer responsibility policy be implemented?
6. Many retailers have introduced a green procurement policy. Give some examples and describe the effects.

Abbreviations

EMAS	Environmental Management and Audit Scheme.
GRI	Global Reporting Initiative.
IPP	Integrated Product Policy.
PET	Poly Ethylene Teraphthalate.
VOC	Volatile Organic Compound.
WEEE	Waste of Electrical and Electronic Equipment.

Internet Resources

European Commission – Integrated Product Policy (IPP)
http://ec.europa.eu/comm/environment/ipp/

Directive 2005/32/EC on the ecodesign of Energy-using Products (EuP)
http://europa.eu.int/comm/enterprise/eco_design/

European Platform on Life Cycle Assessment
http://ec.europa.eu/comm/environment/ipp/lca.htm

Soil and waste unit of the European Platform on Life Cycle Assessment
http://lca.jrc.it/

Environmentally Responsible Procurement – Business and Sustainable Development, BSD, A global guide
http://www.bsdglobal.com/tools/bt_green_pro.asp

Manitoba Green Procurement Network (MGPN), Canada
http://www.pws.gov.nt.ca/procurement/greenProcurement.htm

Producer responsibility at the Environmental Protection Agency, Sweden
http://www.internat.naturvardsverket.se/
(Search for producer responsibility)

The Global Reporting Initiative (GRI)
http://www.globalreporting.org/

Ministry of Trade and Industry, United Kingdom, on IPP
http://www.dti.gov.uk/sustainability/IPP.htm

NOF Corporation environmental policies, Japan
http://www.nof.co.jp/english/environment/kan16.html

Applied Data Systems, Inc. (ADS) Environmental policies, Md USA
http://www.applieddata.net/aboutus_environmental.asp